Instructions - Parts

Stainless Steel Tank Stands

3A0395R

EN

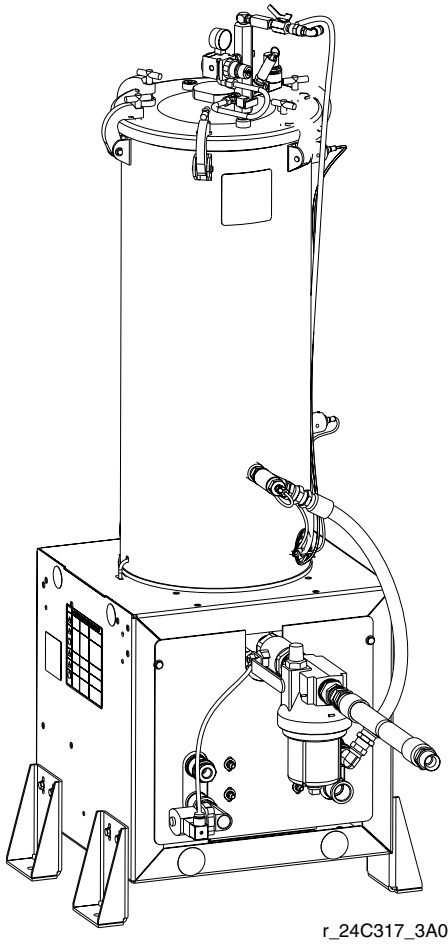
For supplying material to HFR™ plural-component proportioners. For professional use only.

Not approved for use in European explosive atmosphere locations.

100 psi (0.7 MPa, 7.0 bar) Maximum Working Pressure
100 psi (0.7 MPa, 7.0 bar) Maximum Air Pressure

Important Safety Instructions
Read all warnings and instructions in this manual. Save these instructions.

See page 3 for model information.



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Models

The following table lists the tank stand module part numbers and the components included with each.

Part	Includes:						
	Agitator	Slinger Plate	Heat	Insulation	Chiller	Desiccant Dryer	Level Sensors
46 Liter Tanks							
24D562					✔	✔	✔
24D564	✔				✔	✔	✔
24D568							
24D569							✔
24D570	✔						✔
24D571	✔	✔					✔
24D572	✔	✔	✔	✔			✔
24D573	✔		✔	✔			✔
75 Liter Tanks							
24D565					✔	✔	✔
24C317	✔				✔	✔	✔
24D574							
24D575							✔
24D576	✔						✔
24D577	✔	✔					✔
24D578	✔	✔	✔	✔			✔
24D579	✔		✔	✔			✔
24P091	✔		✔	✔		✔	✔
7.5 Liter Tanks							
24J243							✔

Related Manuals

Component manuals listed below are in English. Manuals are available at www.graco.com.

Manual No.	Description
3A1936	Pneumatic and Electric Agitator Kits
3A1962	Pneumatic and Electric Agitators with Heat Blanket Kits

Warnings

The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbols refer to procedure-specific risks. When these symbols appear in the body of this manual, refer back to these Warnings. Product-specific hazard symbols and warnings not covered in this section may appear throughout the body of this manual where applicable.

⚠WARNING

ELECTRIC SHOCK HAZARD

This equipment must be grounded. Improper grounding, setup, or usage of the system can cause electric shock.

- Turn off and disconnect power at main switch before disconnecting any cables and before servicing equipment.
- Connect only to grounded power source.
- All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations.

PRESSURIZED EQUIPMENT HAZARD

Fluid from the gun/dispense valve, leaks, or ruptured components can splash in the eyes or on skin and cause serious injury.

- Follow the **Pressure Relief Procedure** when you stop spraying and before cleaning, checking, or servicing equipment.
- Tighten all fluid connections before operating the equipment.
- Check hoses, tubes, and couplings daily. Replace worn or damaged parts immediately.

TOXIC FLUID OR FUMES HAZARD

Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.

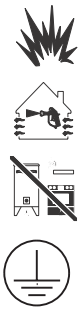
- Read MSDSs to know the specific hazards of the fluids you are using.
- Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.
- Always wear chemically impermeable gloves when spraying, dispensing, or cleaning equipment.

PERSONAL PROTECTIVE EQUIPMENT

You must wear appropriate protective equipment when operating, servicing, or when in the operating area of the equipment to help protect you from serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. This equipment includes but is not limited to:

- Protective eyewear, and hearing protection.
- Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer

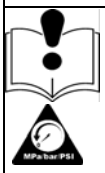
⚠WARNING



FIRE AND EXPLOSION HAZARD

Flammable fumes, such as solvent and paint fumes, in **work area** can ignite or explode. To help prevent fire and explosion:

- Use equipment only in well ventilated area.
- Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static arc).
- Keep work area free of debris, including solvent, rags and gasoline.
- Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present.
- Ground all equipment in the work area. See **Grounding** instructions.
- Use only grounded hoses.
- Hold gun firmly to side of grounded pail when triggering into pail.
- If there is static sparking or you feel a shock, **stop operation immediately.** Do not use equipment until you identify and correct the problem.
- Keep a working fire extinguisher in the work area.



EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.

- Do not operate the unit when fatigued or under the influence of drugs or alcohol.
- Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See **Technical Data** in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. See **Technical Data** in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request MSDS from distributor or retailer.
- Do not leave the work area while equipment is energized or under pressure. Turn off all equipment and follow the **Pressure Relief Procedure** when equipment is not in use.
- Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.
- Do not alter or modify equipment.
- Use equipment only for its intended purpose. Call your distributor for information.
- Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not kink or over bend hoses or use hoses to pull equipment.
- Keep children and animals away from work area.
- Comply with all applicable safety regulations.

BURN HAZARD

Equipment surfaces and fluid that's heated can become very hot during operation. To avoid severe burns:

- Do not touch hot fluid or equipment.

Important Two-Component Material Information

Isocyanate Conditions

Spraying or dispensing materials containing isocyanates creates potentially harmful mists, vapors, and atomized particulates.

Read material manufacturer's warnings and material MSDS to know specific hazards and precautions related to isocyanates.

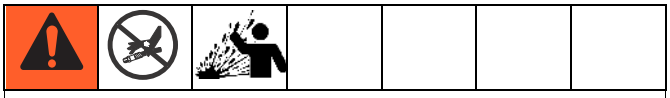
Prevent inhalation of isocyanate mists, vapors, and atomized particulates by providing sufficient ventilation in the work area. If sufficient ventilation is not available, a supplied-air respirator is required for everyone in the work area.

To prevent contact with isocyanates, appropriate personal protective equipment, including chemically impermeable gloves, boots, aprons, and goggles, is also required for everyone in the work area.

Material Self-ignition

Some materials may become self-igniting if applied too thickly. Read material manufacturer's warnings and material MSDS.

Keep Components A and B Separate



Cross-contamination can result in cured material in fluid lines which could cause serious injury or damage equipment. To prevent cross-contamination of the equipment's wetted parts, **never** interchange component A (isocyanate) and component B (resin) parts.

Moisture Sensitivity of Isocyanates

Isocyanates (ISO) are catalysts used in two component foam and polyurea coatings. ISO will react with moisture (such as humidity) to form small, hard, abrasive crystals, which become suspended in the fluid. Eventually a film will form on the surface and the ISO will begin to gel, increasing in viscosity. If used, this partially cured ISO will reduce performance and the life of all wetted parts.

NOTE: The amount of film formation and rate of crystallization varies depending on the blend of ISO, the humidity, and the temperature.

To prevent exposing ISO to moisture:

- Always use a sealed container with a desiccant dryer in the vent, or a nitrogen atmosphere. **Never** store ISO in an open container.
- Keep the ISO lube pump reservoir (if installed) filled with Graco Throat Seal Liquid™ (TSL™), Part 206995. The lubricant creates a barrier between the ISO and the atmosphere.
- Use moisture-proof hoses specifically designed for ISO, such as those supplied with your system.
- Never use reclaimed solvents, which may contain moisture. Always keep solvent containers closed when not in use.
- Never use solvent on one side if it has been contaminated from the other side.
- Always lubricate threaded parts with ISO pump oil or grease when reassembling.

Foam Resins with 245 fa Blowing Agents

Some foam blowing agents will froth at temperatures above 90°F (33°C) when not under pressure, especially if agitated. To reduce frothing, minimize preheating in a circulation system.

Changing Materials

- When changing materials, flush the equipment multiple times to ensure it is thoroughly clean.
- Always clean the fluid inlet strainers after flushing.
- Check with your material manufacturer for chemical compatibility.
- Most materials use ISO on the A side, but some use ISO on the B side.
- Epoxies often have amines on the B (hardener) side. Polyureas often have amines on the B (resin) side.

Component Identification

Tank Feed System

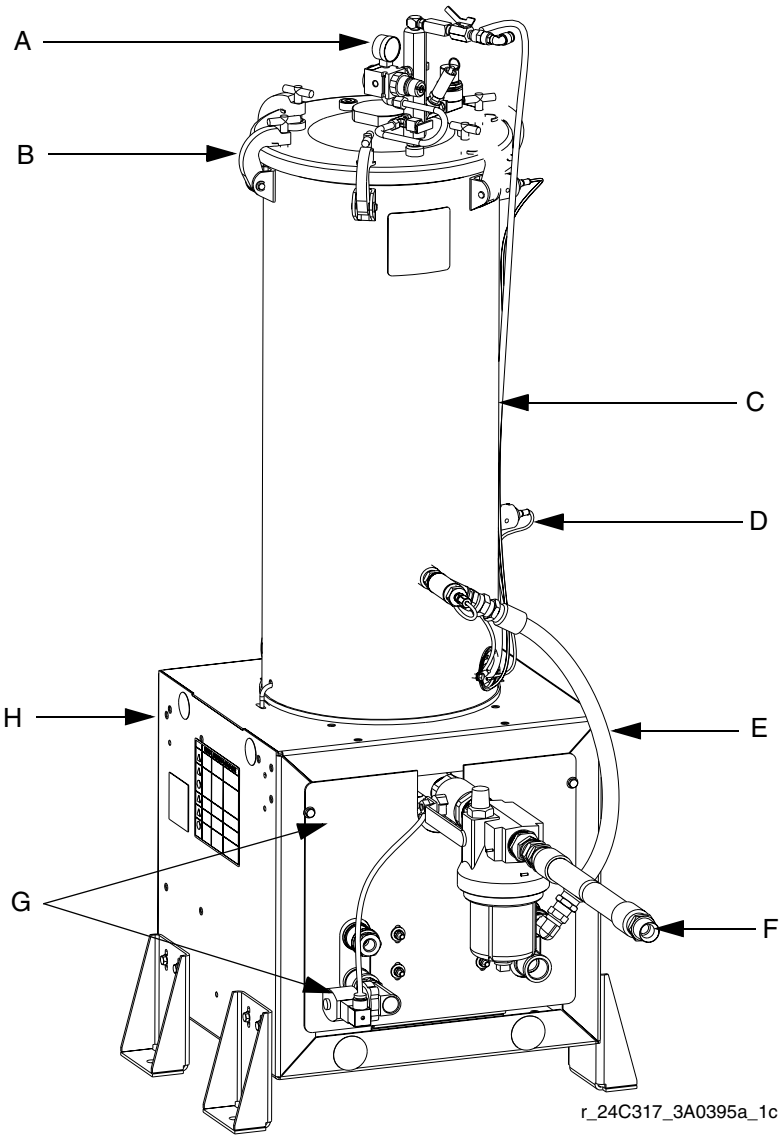


FIG. 1: Component Identification - Tank Feed System

Key:

A Air Pressure Gauge and Valve
B Lid or Lid with Agitator
C Tank
D Material Valve
E Recirculation Probe Assembly
F Ball Valve Assembly
G Heat Exchanger Assembly
H Enclosure
J Level Sensors (not shown)

Electrical Panel Components

The electrical panel is located on the inside of the tank stand enclosure, and includes the circuit breakers, a fluid control module, and a low power temperature control module.

Circuit Breakers

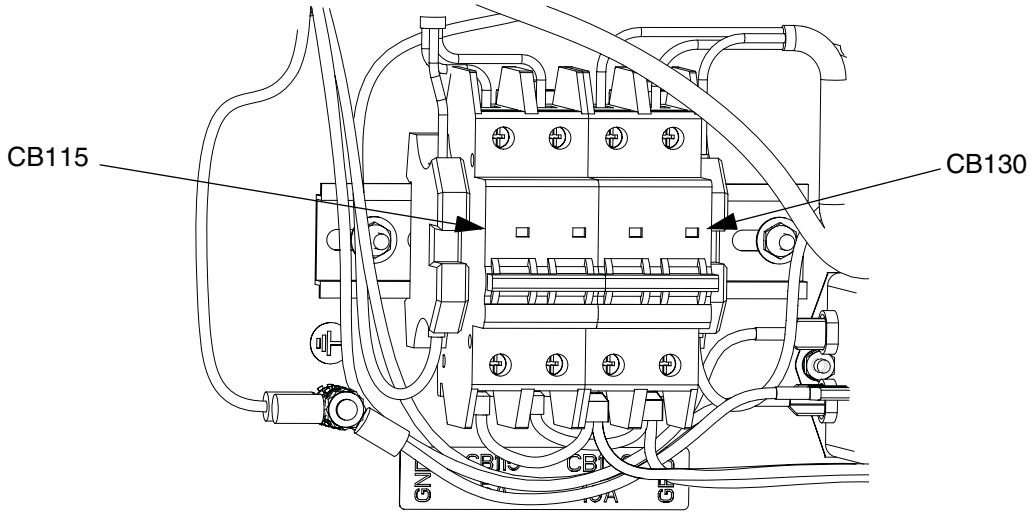


FIG. 2: Component Identification - Circuit Breakers

Ref.	Size	Component
CB115	5A	Agitator
CB130	10A	Low power temperature control module / heat blanket / chiller

Fluid Control Module (FCM)

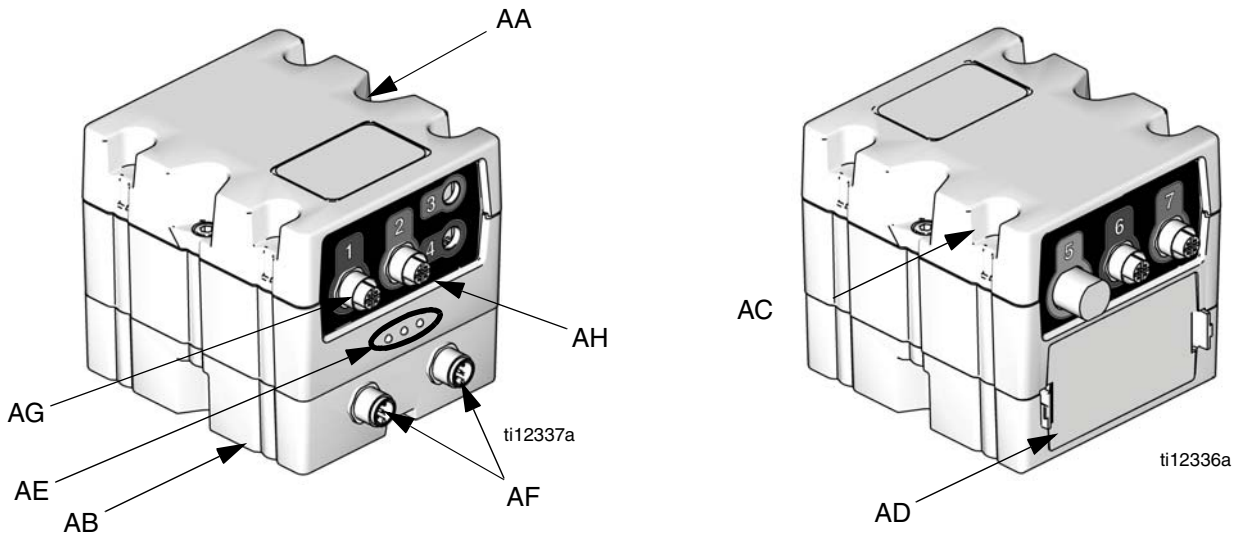


FIG. 3: Component Identification - FCM

Key:

AA Fluid Control Module (FCM)
AB Base
AC Module Connection Screws
AD Access Cover
AE Module Status LEDs
AF CAN Connectors
AG Level Sensor Input
AH Fill Solenoid Signal

Low Power Temperature Control Module

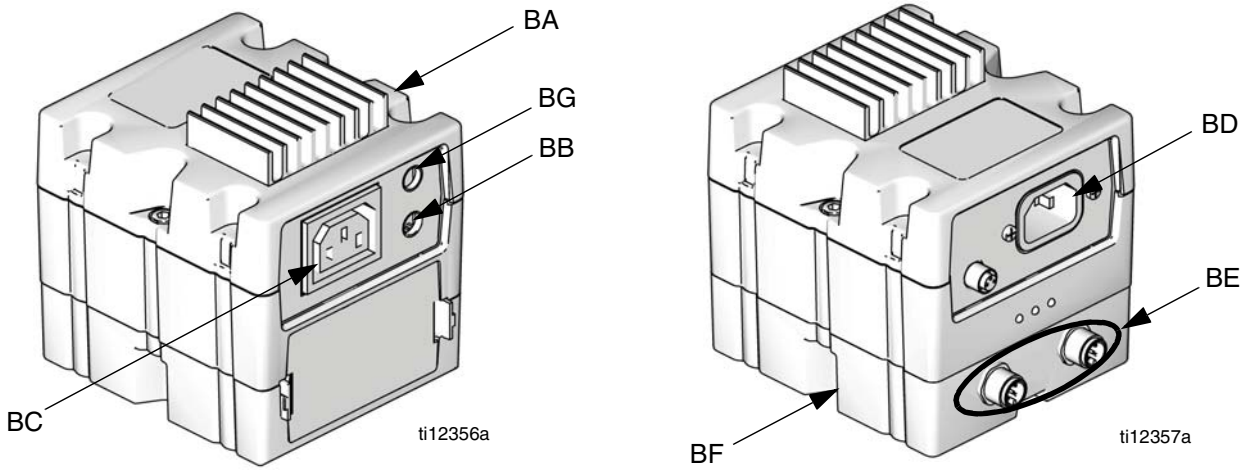


FIG. 4: Component Identification - Low Power Module

Key:

BA Low Power Module
BB RTD Temperature Sensor Connection (for chiller or for RTD in bottom of tank when using a heated blanket)
BC Output Power Connection
BD Input Power Connection
BE CAN Connectors
BF Base
BG RTD Temperature Sensor Connection (for RTD under heated blanket)

Heat Zone and Fluid Control Selection

The tank feed system supports independent temperature control by utilizing a low power temperature control module. The system also supports fluid control by utilizing an FCM. Both the low power temperature control module and the FCM are located on the electrical panel within the enclosure.

NOTE: Tank stands are configured for the A (Red) side. Adjust rotary switch setting if tank is being used on B (Blue) side.

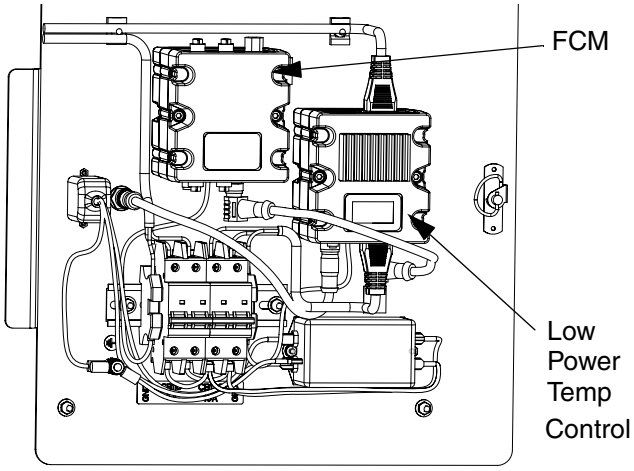


FIG. 5: Electrical Panel

Adjust Rotary Switch

The rotary switch setting indicates which zone the temperature control module will control in the system. The low power module and FCM use a 16-position rotary switch to make selections.

Set the rotary switch to the specific selection according to the settings listed in the following tables.

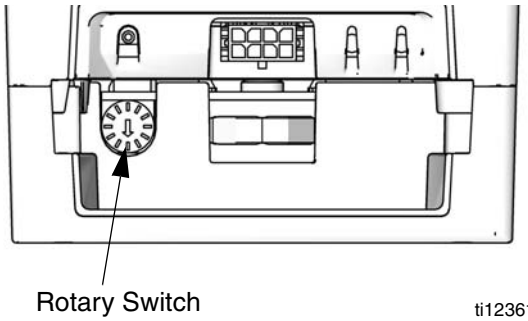


FIG. 6: Adjust Rotary Switch

Low Power Temperature Control Module Rotary Switch Settings

Setting	Zone
0-4	Not Used
5	B (Blue) Tank Heater
6	A (Red) Tank Heater
7	B (Blue) Chiller
8	A (Red) Chiller
9-F	Not Used

FCM Rotary Switch Settings

Setting	Zone
0-2	Not Used
3	B (Blue) Tank Refill
4	A (Red) Tank Refill
5-F	Not Used

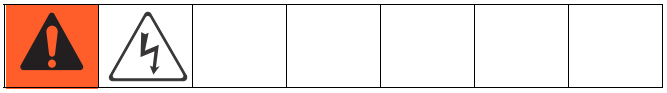
Installation

Grounding

Products that include heated tanks must be grounded. Grounding reduces the risk of static and electric shock by providing an escape wire for the electrical current due to static build up or in the event of a short circuit.

Improper installation of the grounding plug increases the risk of electric shock. Do not modify the plug provided; if it does not fit the outlet, have the proper outlet installed by a qualified electrician. Only connect the product to an outlet having the same configuration as the plug. Do not use an adapter with this product.

Install Tank Stand



1. Install the tank stand no more than 6 ft. (1.8 m) from the rear of the material pumps on the HFR system.
2. Anchor the tank stand to the floor. (Suggested anchors: McMaster-Carr anchor, 92403A400.) See **Dimensions**, page 66.
3. Plug the tank stand power cable into the bottom of the HFR power distribution box.
4. Plug the tank stand CAN cable into the CAN splitter inside the distribution box.

NOTE: Tank stands are configured for the A (Red) side. Adjust rotary switch setting if tank is being used on B (Blue) side.

Install Barrel Style Level Sensors

1. Turn main power off.
2. Relieve tank air pressure. See **Pressure Relief Procedure**, page 17.
3. Drain tanks below the lowest level sensor well.

If installing high temperature level sensors:

4. Apply PTFE paste and PTFE tape to the male threads of the level sensor.
5. Being careful to not cross-threads, thread the level sensor (CB) into the corresponding tank port.

NOTICE

To avoid improper operation, ensure the mark (dot or arrow) found on the hex of the level sensor is pointing towards the top or bottom of the machine after tightening.

6. Plug the sensor cable adapter into the level sensor.
7. Plug the sensor connector (CD) into the level sensor adapter.
8. Plug the sensor connector into the connector on the FCM.

If installing low temperature level sensors:

NOTE: For proper level sensor function, the tip of the level sensor well must protrude at least 1/8 in. into the tank (C).

9. Route each level sensor (H) wire (J1, J2, J3) through the corresponding well nut (CC). See FIG. 8 for wire location on tank.

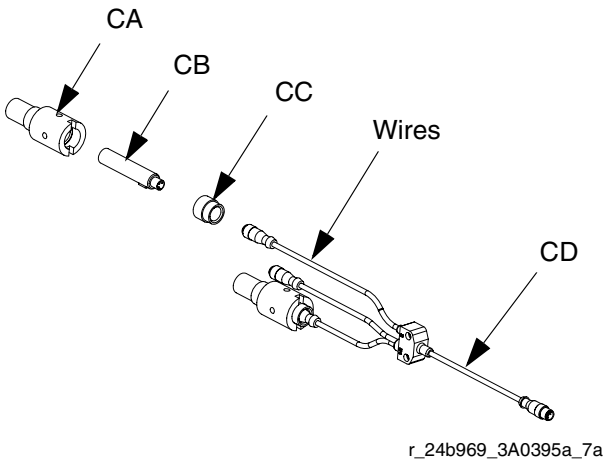


FIG. 7: Level Sensor Assembly

10. Measure the length of the level sensor well housing, and then measure the depth of the hole in the tank where the well is inserted. Note these measurements as they will be need later.

11. Being careful to not cross-threads, thread assembled level sensor (CB) into well housing until it bottoms out against the bottom of the well. The bottom of the level sensor will be slightly visible through the bottom of the well.

NOTE: In the following step, do not allow PTFE paste or tape to cover the tip of the level sensor well. If paste comes in contact with the tip of the level sensor well, thoroughly wipe it clean.

12. Apply PTFE paste and PTFE tape to the male threads of the level sensor well housing.

13. Being careful to not cross-threads, thread the level sensor well (CA) into the corresponding tank port and lightly tighten with a crescent wrench.

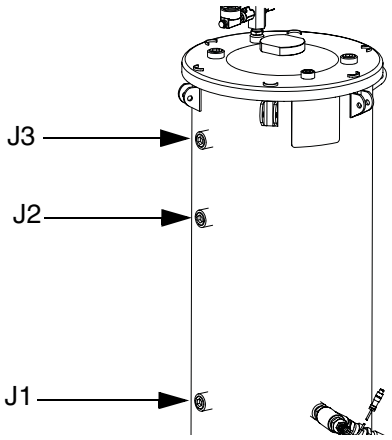


FIG. 8: Tank Ports

14. Measure the amount of the level sensor well housing that is visible beyond the day tank hole, then perform the following equation:

P = L1 - (L2 + L3)

P = Protrusion length (inside of day tank)
L1 = Length of level sensor well
L2 = Visible length of level sensor well
L3 = Length of well threads in day tank

15. The protrusion length must be at least 1/8 in. (3.2 mm). If not, remove the level sensor well and restart at step 10.

16. Rotate level sensor to optimal position for wire routing.

17. Plug the sensor connector (CD) into the level sensors.

Ensure the level sensors are installed in the sensor well housings before pressurizing the tank. Failing to do so could cause the well housings to rupture, which may result in serious injury and material leakage.

18. Plug the sensor connector into the connector on the FCM.

19. Calibrate the sensor. See **Calibrate Barrel Style Level Sensors**, page 16.

Install Ultrasonic Level Sensor

NOTE: The ultrasonic level sensor is only used on two gallon tanks.

1. Turn main power off.
2. Relieve tank air pressure. See **Pressure Relief Procedure**, page 17.
3. Drain tank.
4. Remove the tank lid (DA).
5. Insert the o-ring (DB) and sensor well housing (DC) into the tank port.

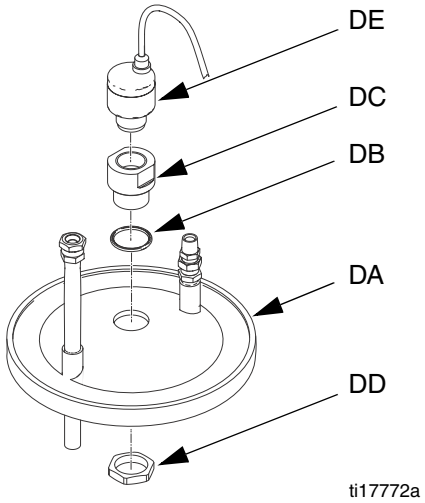


FIG. 9: Ultrasonic Level Sensor

6. Tighten the jam nut (DD) to ensure there will not be any air leakage.
7. Hand tighten the level sensor (DE).
8. Plug the sensor connector into the connector on the FCM.

Install Chiller (customer supplied)

The following instructions apply to tank modules (24C317, 24D562, 24D564, 24D565) that include the heat exchanger assembly (G).

NOTE: Graco does not supply the chiller assembly.

1. Connect incoming water to inlet heat exchanger port.
2. Connect outgoing water to outlet heat exchanger port.

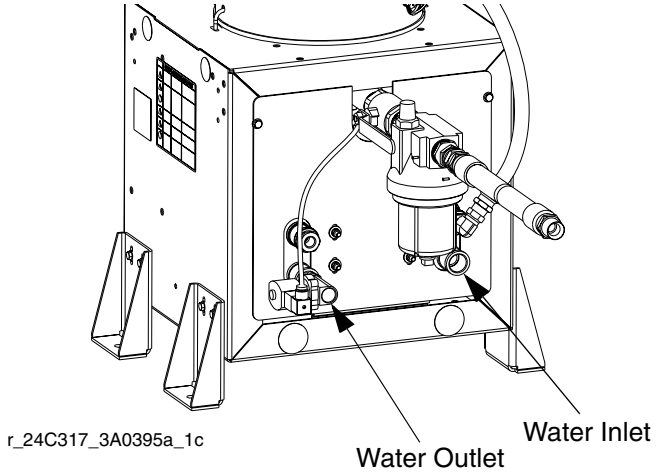


FIG. 10: Level Sensor Assembly

3. Configure the advanced display module (ADM) for the chiller option. See the HFR Setup-Operation manual for instructions.

Auto-Refill Installation: customer supplied feed system

NOTE: The auto-refill assembly is not assembled when shipped.

1. Empty tank (C).
2. Remove plug from lower, rear of tank.
3. Install auto-refill assembly in 3/4 npt port.
4. Connect hose (not supplied) to 1/2 npt port on material valve.

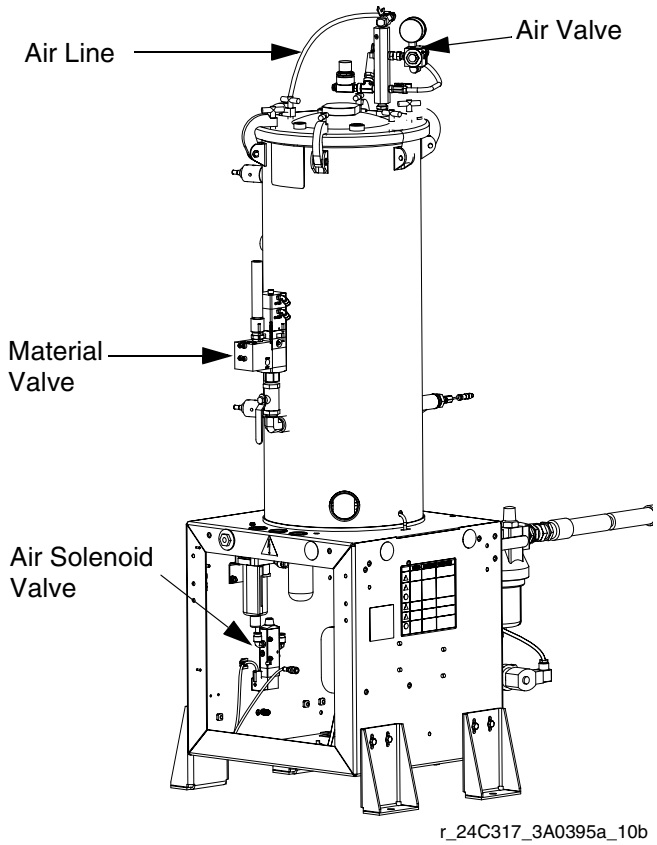


FIG. 11: Tank Assembly

5. Connect air lines from air valve (A) to material valve (D).
6. Connect main air line to air valve.

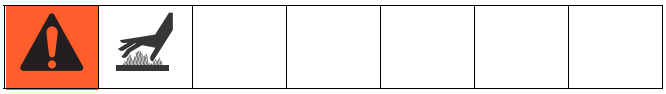
Auto-Refill Installation: Graco supplied feed system

NOTE: The auto-refill assembly is not assembled when shipped.

1. Empty tank (C).
2. Remove plug from lower, rear of tank.
3. Connect feed pump outlet hose to tank.
4. Connect air lines from air valve to feed pump.
5. Connect main air line to air valve.

Setup

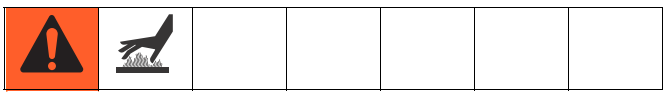
Calibrate Barrel Style Level Sensors



NOTE: Calibration is not required for ultrasonic style level sensors or high temperature level sensors.

1. Locate the calibration button on the sensor (11) closest to the electrical connector through one of the four holes of the sensor well housing (CA).
2. If the calibration button cannot be seen through one of the four holes in the sensor well, rotate the sensor.
   a. Loosen the sensor well nut (CC).
   b. Rotate sensor until the calibration button can be seen through one of the four holes in the sensor well housing.
   c. Tighten sensor well nut.
   d. Press and hold the button down with the ball end of an allen wrench for two seconds. The light will flash slowly and then go out.
3. Test for proper sensor function.
   a. Loosen the sensor well nut.
   b. Back the sensor out of the well. The sensor should sense the tank wall.

Vacuum De-gas



NOTE: Only perform the following procedures for tank volumes other than two gallons.

1. Shut down the HFR system. Refer to the HFR Setup-Operation manual for instructions.
2. Close the shut-off ball valves at the base of the tanks.
3. If the tank lid has a fill port, turn off any systems that might refill the tank during the vacuum de-gas procedure.
4. Close the fill port ball valve.
5. If the tank lid requires a desiccant dryer, install it into the top ball valve of the vacuum tree manifold.
6. Close the top ball valve of the vacuum tree manifold.
7. Attach vacuum pump to the bottom ball valve of the vacuum tree manifold. Open the ball valve.
8. Turn on the vacuum pump.
9. Continue to de-gas the material.
10. Close bottom ball valve of the vacuum tree manifold.
11. Turn off the vacuum pump.
12. Open the top ball valve of the vacuum tree manifold.

NOTICE

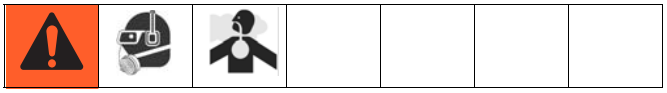
Operating the tank after the vacuum de-gas procedure without the top ball valve open will result in pump cavitation, off-ratio conditions, and possible collapse of the tank.

13. Open the shutoff valves at the base of the tanks.

Operation

See HFR Setup-Operation manual for system operation instructions.

Startup



Start System

See HFR Setup-Operation manual for system startup instructions.

Start Agitation

Press agitator manual switch on and off to start agitation.

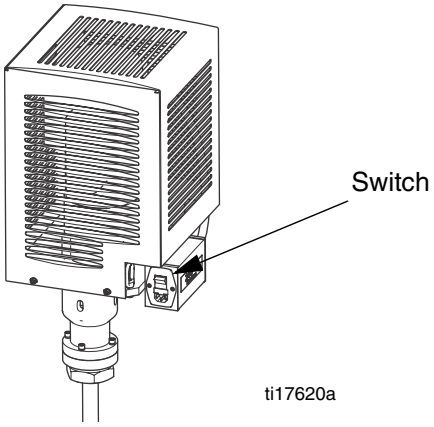


FIG. 12: Agitator Switch

Pressure Relief Procedure

NOTE: Relieving air pressure in the machine means that the supplied dry air will be replaced by moist air. Do not leave the machine exposed to moist air for more than 30 minutes. If the machine must be left without air pressure for more than 30 minutes, the day tanks must first be emptied and thoroughly flushed.

1. Turn off main power.
2. Close day tank incoming air supply valve.
3. Disconnect pressurized air supply hose from water separator.
4. Open the pressure relief valve on top of each day tank to bleed air pressure from system.

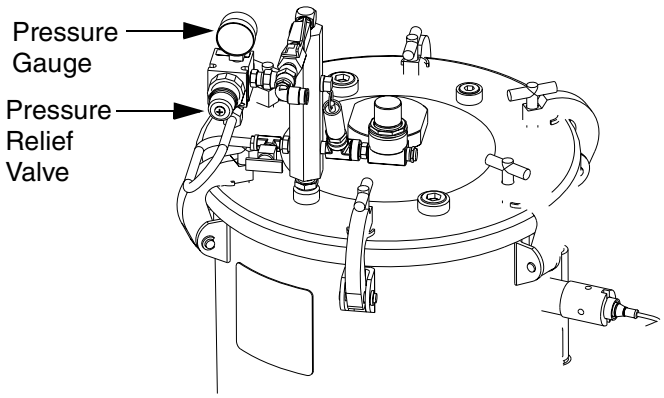
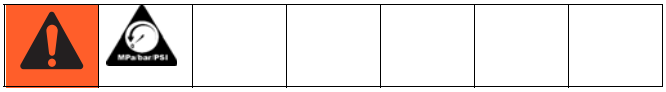


FIG. 13: Tank Pressure Relief

5. Ensure there is no air pressure in the tanks; look at the pressure gauges.

Maintenance



Daily Maintenance

Desiccant Dryer

Replace silica gel units when the desiccant color or moisture indicator has changed color from Blue (meaning dry) to Pink (meaning wet).

1. Turn off and depressurize the line containing the dryer unit.
2. Loosen the camp ring and remove the bowl from the top housing.
3. Pour out used desiccant.
4. Open new container and refill bowl
5. Shake or tap bowl to settle desiccant. Add or remove desiccant until it is 1/8 in. below the inner step of the bowl.

Air Filter (123377)

1. Drain water separator if necessary.
2. Pressurize the air system.
3. If desired, place a container underneath water separator to catch water.
4. Push purge valve.
5. Release valve when filter is empty.

Weekly Maintenance

Material Filter (213062)

The red alert filter indicator provides gradual warning of a dirty element. When the indicator displays as 3/4 red, clean the element. If the element is not cleaned promptly, the filter bypass valve opens and fluid will not be filtered.

To clean the element:

1. Clean the filter element with a small paint brush.
2. Use air to blow out lodged particles.
3. Inspect for damage.
4. Replace if ruptured. See manual 307283.

Replacement Filters

- 108111 – 30 stainless steel mesh
- 108112 – 60 stainless steel mesh
- 108113 – 100 stainless steel mesh
- 108114 – 200 stainless steel mesh
- 108115 – 150 stainless steel mesh

Install Upgrade Tokens

NOTE: The Fluid Control Module and Temperature Control Module connection to the system is temporarily disabled during the installation of upgrade tokens.

To install software upgrades:

1. Use correct software token stated in the table. See Graco Control Architecture™ Module Programming manual for instructions.

NOTE: Upgrade all modules in the system to the software version on the token, even if you are replacing only one or two modules. Different software versions may not be compatible.

All data in the module (System Settings, USB Logs, Recipes, Maintenance Counters) may be reset to factory default settings. Download all settings and user preferences to a USB before the upgrade, for ease of restoring them following the upgrade.

See manuals for locations of specific GCA components.

The software version history for each system can be viewed in the technical support section at www.graco.com.

Token	Application
16G584	**Tank Stand:** - Fluid Control Module - Low Power Temperature Control Module

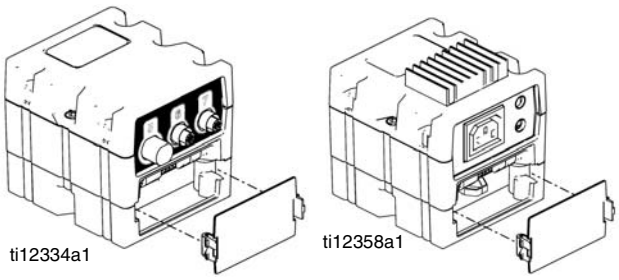


FIG. 14: Remove Access Cover

Troubleshooting

Problem	Cause	Solution
No agitation.	Agitator motor is not turning.	Ensure the system main power is ON.
	Intermittent electrical connections.	Ensure all electrical connections to the motor are secure. See electrical schematic in either the HFR Repair-Parts manual.
		Check fuse at agitator switch.
		Check if motor circuit breaker in base cube has tripped. See electrical schematic in either the HFR Repair-Parts manual.
		Check if tank stand circuit breaker in power distribution module has tripped. See electrical schematic in either the HFR Repair-Parts manual.
		Replace motor.
No vacuum suction in tank.	Vacuum pump is not functioning.	Check power cord from wall.
	Vacuum lines damaged or leaking.	Ensure vacuum pump power is ON.
		Ensure connections from vacuum line to tank lid are secure.
		Ensure there are no kinks or links in vacuum line to tank lid.
		Replace vacuum pump.

Problem	Cause	Solution
Material is not heating.	Blanket heater not working.	Ensure the system main power is ON.
	Intermittent electrical connections.	Ensure all electrical connections to the blanket heater are secure. See electrical schematic in either the HFR Repair-Parts manual.
	Material temperature variations.	
	FCM errors.	Ensure the tank RTD connections are secure. See electrical schematic in either the HFR Repair-Parts manual.
		Check if FCM circuit breaker has tripped. See electrical schematic in either the HFR Repair-Parts manual.
		Check if tank stand circuit breaker in GMS™ power distribution box has tripped. See electrical schematic in either the HFR Repair-Parts manual.
		Check FCM. A red LED indicates a problem with the module. See electrical schematic in either the HFR Repair-Parts manual.
		Replace tank RTD.
		Replace blanket heater RTD.
		Replace blanket heater.
		Replace FCM

Problem	Cause	Solution
Material is not cooling.	Chiller control solenoid not working.	Ensure the system main power is ON.
	Intermittent electrical connections.	Ensure all electrical connections to the chiller control solenoid are secure. See electrical schematic in either the HFR Repair-Parts manual.
	Material temperature variations.	
	FCM errors.	Ensure the tank RTD connections are secure. See electrical schematic in either the HFR Repair-Parts manual.
		Check FCM circuit breaker in base cube to see if it has tripped. See electrical schematic in either the HFR Repair-Parts manual.
		Check tank stand circuit breaker in GMS power distribution box to see if it has tripped. See electrical schematic in either the HFR Repair-Parts manual.
		Check FCM. A red LED indicates a problem with the module. See electrical schematic in either the HFR Repair-Parts manual.
		Replace tank RTD.
		Replace chiller control solenoid.
		Replace FCM.

Problem	Cause	Solution
Level sensor is not sensing material when material is present. Level sensor is sensing material when material is not present.	Level sensors out of calibration. Level sensors blocked inside tank. Intermittent electrical connections. FCM errors.	Ensure the system main power is ON. Calibrate level sensor. Check inside tank to ensure there is nothing blocking the level sensor. Ensure all electrical connections to the level sensor are secure. See electrical schematic in either the HFR Repair-Parts manual. Check FCM circuit breaker in base cube to see if it has tripped. See electrical schematic in either the HFR Repair-Parts manual. Check tank stand circuit breaker in GMS power distribution box to see if it has tripped. See electrical schematic in either the HFR Repair-Parts manual. Check FCM. A red LED indicates a problem with the module. See electrical schematic in either the HFR Repair-Parts manual. Replace level sensor. Replace FCM.

Problem	Cause	Solution
Tank is not refilling.	Air solenoid valve not operating.	Check the material supply feed to the tank.
	Leaking or damaged air lines.	Check inside tank to ensure there is nothing blocking the level sensor.
	Intermittent electrical connections.	Ensure the main air to tank connections are secure.
	Level sensors out of calibration.	Ensure the air lines from the air solenoid valve to the fill valve or feed pump are securely connected and that there are no leaks.
	Supply/feed system is off or empty.	Ensure all electrical connections to the air solenoid valve are secure. See electrical schematic in either the HFR Repair-Parts manual.
		Ensure the air solenoid valve is operating by removing the outgoing air line to determine if air is flowing.
		Check FCM. A red LED indicates a problem with the module. See electrical schematic in either the HFR Repair-Parts manual.
		Replace air solenoid valve.
		Replace level sensor.
		Replace fill valve.
		Replace feed pump.
		Replace FCM.

Problem	Cause	Solution
Tank is overfilling.	Level sensors out of calibration.	Calibrate level sensors.
	Level sensors blocked inside tank.	Check inside tank to ensure there is nothing blocking the level sensor.
	Intermittent electrical connections.	Ensure the main air to tank connections are secure.
		Ensure the air lines from the air solenoid valve to the fill valve or feed pump are securely connected and that there are no leaks.
		Ensure all electrical connections to the air solenoid valve are secure. See electrical schematic in either the HFR Repair-Parts manual.
		Ensure the air solenoid valve is operating by removing the outgoing air line to determine if air is flowing.
		Check FCM. A red LED indicates a problem with the module. See electrical schematic in either the HFR Repair-Parts manual.
		Replace air solenoid valve.
		Replace level sensor.
		Replace fill valve.
		Replace feed pump.
		Replace FCM.

Problem	Cause	Solution
System is not circulating material.	Bypass valve damaged or not operating.	Ensure the system main power is ON.
	Material hoses incorrectly connected.	Ensure the main air to tank connections are secure.
	Material hose leakage.	Ensure the air lines from the bypass air solenoid valve to the bypass valve are securely connected and that there are no leaks.
		Ensure all electrical connections to the bypass air solenoid valve are secure. See electrical schematic in either the HFR Repair-Parts manual.
		Ensure the bypass air solenoid valve is operating by removing the outgoing air line to determine if air is flowing.
		Check FCM. A red LED indicates a problem with the module. See electrical schematic in either the HFR Repair-Parts manual.
		Check tank stand circuit breaker in GMS power distribution box to see if it has tripped. See electrical schematic in either the HFR Repair-Parts manual.
		Replace bypass valve.
		Replace bypass air solenoid valve.

Problem	Cause	Solution
Tank stand module is not communicating with system.	Intermittent electrical connections.	Ensure the system main power is ON.
	FCM errors.	Ensure power disconnect on base cube is ON.
		Ensure all power and communication connections from the GMS system to the tank stand are secure. See electrical schematic in either the HFR Repair-Parts manual.
		Check tank stand circuit breaker in GMS power distribution box to see if it has tripped. See electrical schematic in either the HFR Repair-Parts manual.
		Check FCM. A red LED indicates a problem with the module. See electrical schematic in either the HFR o Repair-Parts manual.
		Replace power cable.
		Replace communications cable.

Repair

Replace Agitator Fuse

1. Turn off main power.
2. Slide open the fuse drawer.
3. Remove old fuse and replace with new fuse.

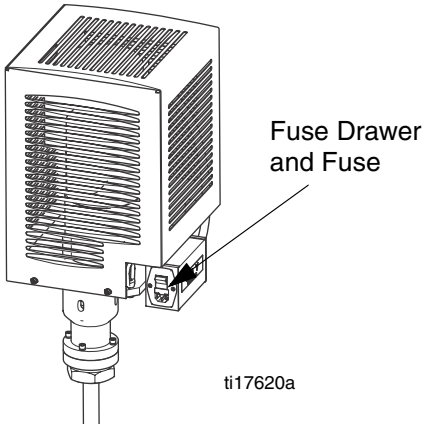


FIG. 15: Agitator Fuse

Tank Lid Gasket

NOTE: If the tank includes an agitator, use a capable hoist to lift the tank lid and agitator assembly out of the day tank.

Tools/Supplies Required:

- Hoist (if an agitator is installed)
- Drop cloth
- Crescent wrench
- 3 ft. x 3 ft. air tight plastic sheet and removable tape
- Screwdriver
- Lithium o-ring grease

1. Turn off main power.
2. Relieve tank air pressure. See **Pressure Relief Procedure**, page 17.
3. Use a drop cloth to set the tank lid assembly on.
4. Remove pressurized air supply tubing from tank air pressure inlet. Press on locking collar and pull out the tube.
5. Use a crescent wrench to loosen all of the bolts (CE) on the tank lid (B) in a cross-wise pattern.

6. Lift the tank lid assembly (B) off of the tank and set on the drop cloth.

NOTICE

Damage to the level sensors may occur when there is an agitator installed and the lid is removed. To avoid damage to level sensors, remove the tank lid assembly while keeping the agitator away from the level sensor assemblies.

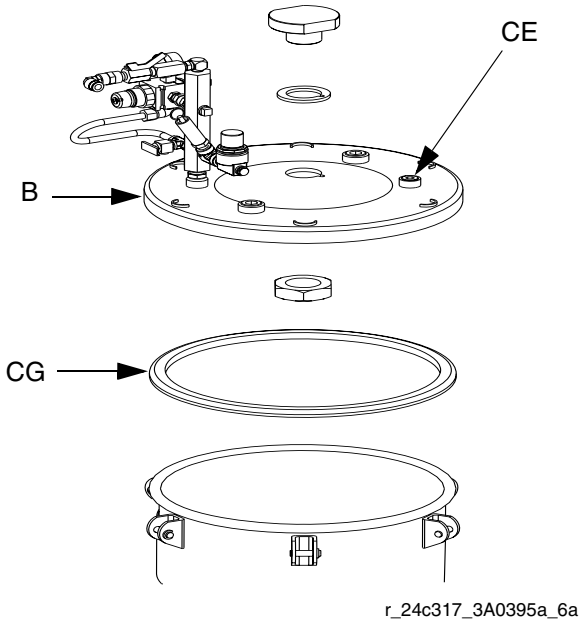


FIG. 16: Tank Lid

7. Use an air tight plastic sheet and removable tape to cover the day tank opening. Tape the sheet in place.
8. Use a screwdriver to remove the tank lid gasket (CG, part 117571) from the groove on the bottom of the tank lid.
9. Apply lithium grease to the new tank lid gasket and press the gasket into the groove.
10. Remove air tight plastic sheet and tape from tank.
11. Replace the tank lid (B) and new gasket onto the day tank.
12. Hand-tighten the bolts onto the lid. Then use a crescent wrench to tighten the bolts (CE) in a cross-wise pattern.
13. Re-attach pressurized air supply tubing by pressing in on locking collar and sliding in the tube.
14. With air pressure now supplied to the tank, purge the moist air from the tank by opening the air purge valve on the tank lid for 60 seconds.
15. Turn on main power and run the machine for 30 minutes to circulate material.

Level Sensor and Well

NOTE: For proper level sensor function, the tip of the level sensor well must protrude at least 1/8 in. into the tank (C).

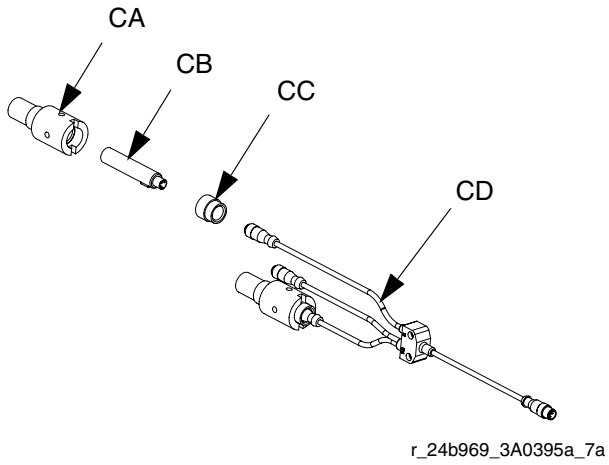


FIG. 17: Level Sensor Assembly

1. Turn main power off.
2. Relieve tank air pressure. See **Pressure Relief Procedure**, page 17.
3. Drain tanks to below level sensor well.
4. Unscrew level sensor harness cable (CD) from level sensor well housing (CA).
5. Use a crescent wrench to remove level sensor well housing from tank (C).
6. Remove the old level sensor (CB) from well housing.
7. Measure the length of the level sensor well housing, and then measure the depth of the hole in the tank where the well is inserted. Note these measurements as they will be needed later.
8. Being careful to not cross-threads, thread assembled level sensor (CB) into well housing until it bottoms out against the bottom of the well. The bottom of the level sensor will be slightly visible through the bottom of the well.

NOTE: In the following step, do not allow PTFE paste or tape to cover the tip of the level sensor well. If paste comes in contact with the tip of the level sensor well, thoroughly wipe it clean.

9. Apply PTFE paste and PTFE tape to the male threads of the level sensor well housing.
10. Being careful to not cross-threads, thread the level sensor well into the tank (C) and lightly tighten with a crescent wrench.
11. Measure the amount of the level sensor well housing that is visible beyond the day tank hole, then perform the following equation:

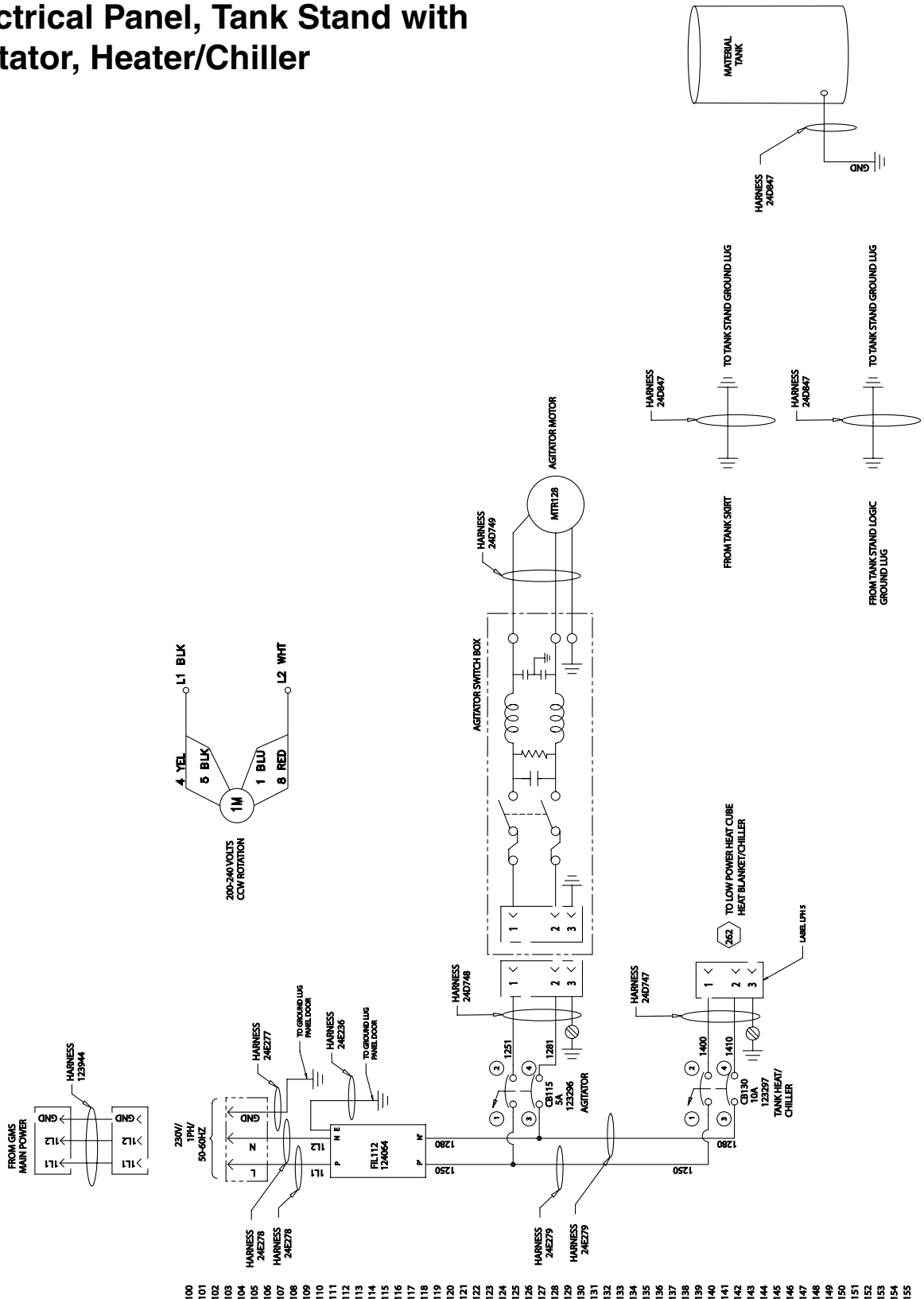
    P = L1 - (L2 + L3)

    P = Protrusion length (inside of day tank)
    L1 = Length of level sensor well (A10)
    L2 = Visible length of level sensor well
    L3 = Length of well threads in day tank

12. The protrusion length must be at least 1/8 in. (3.2 mm). If not, remove the level sensor well and restart at step 7.
13. Rotate level sensor to optimal position for wire routing and connect cable to connector.

Electrical Schematics

Electrical Panel, Tank Stand with Agitator, Heater/Chiller



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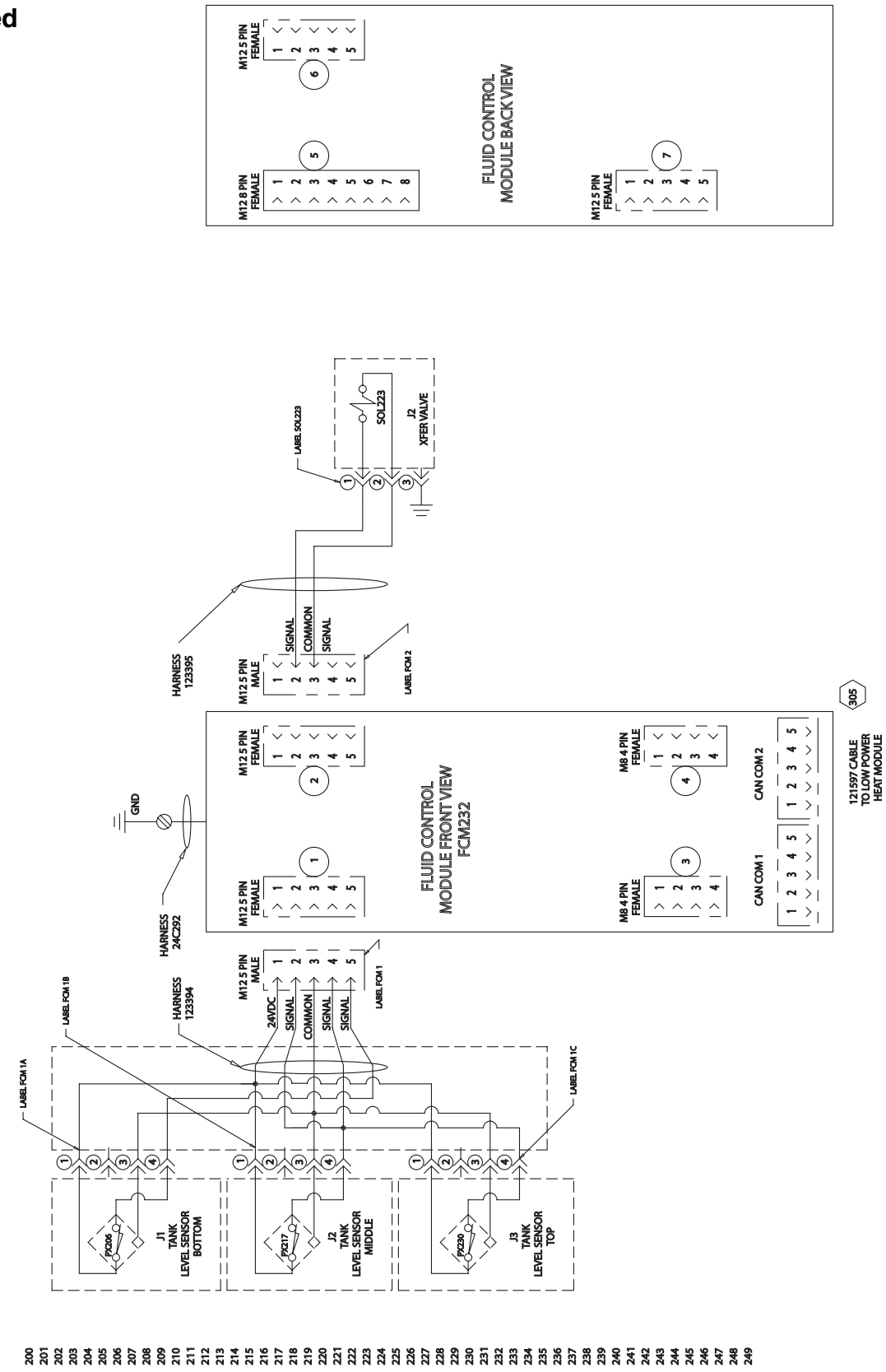
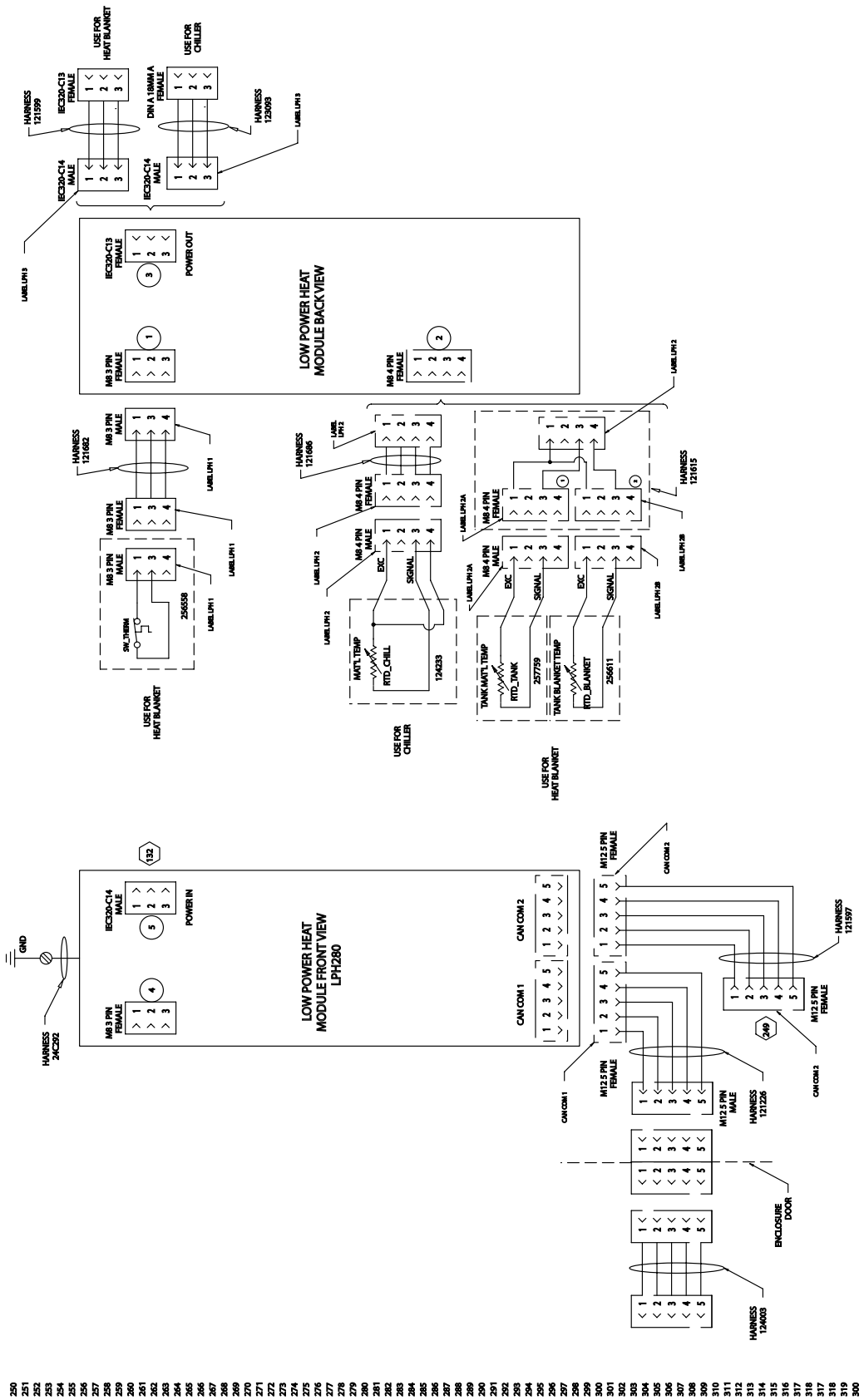
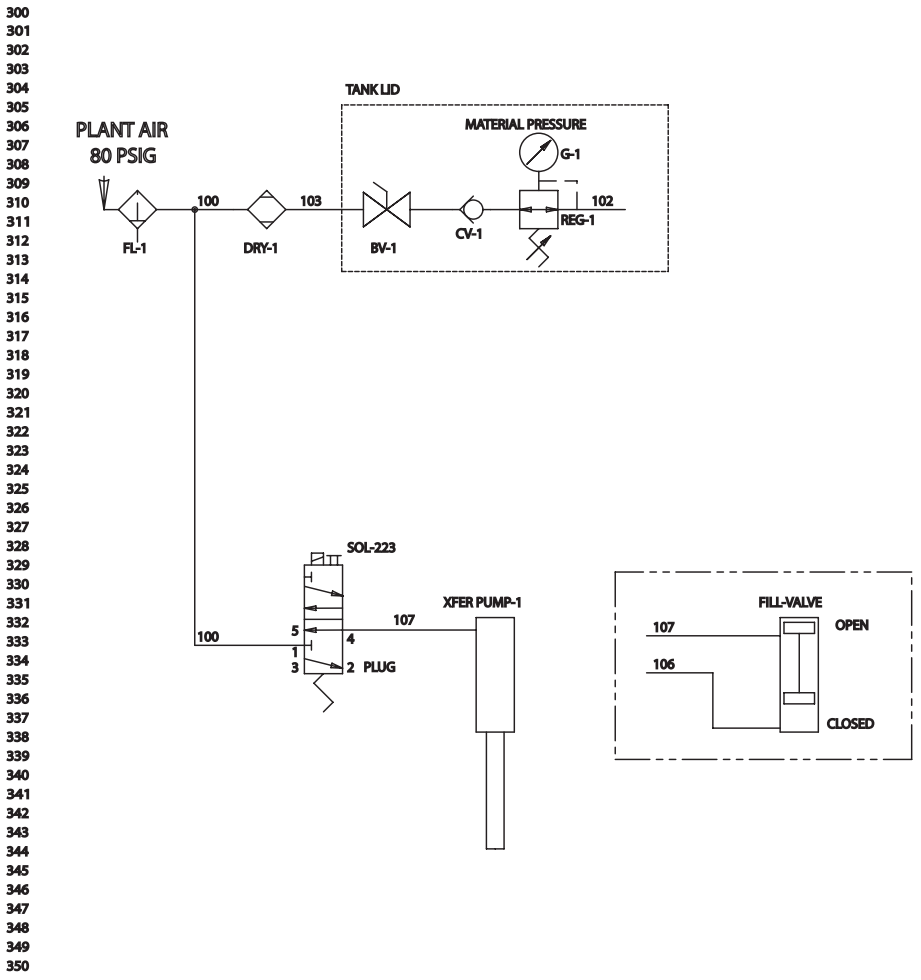

FLUID CONTROL
MODULE BACK VIEW
M12 8 PIN
FEMALE
M12 5 PIN
FEMALE
M12 5 PIN
FEMALE
M12 5 PIN
FEMALE
FLUID CONTROL
MODULE FRONT VIEW
FCM232
M12 5 PIN
FEMALE
M12 5 PIN
FEMALE
M12 5 PIN
FEMALE
M8 4 PIN
FEMALE
M8 4 PIN
FEMALE
CAN COM 1
CAN COM 2
121597 CABLE
TO LOW POWER
HEAT MODULE
305
GND
HARNESS
24C292
HARNESS
123394
HARNESS
123395
M12 5 PIN
MALE
M12 5 PIN
MALE
24VDC
SIGNAL
COMMON
SIGNAL
SIGNAL
SIGNAL
COMMON
SIGNAL
LABEL FCM 1A
LABEL FCM 1B
LABEL FCM 1C
LABEL FCM 1
LABEL FCM 2
LABEL SOL223
SOL223
J2
XFER VALVE
PX206
J1
TANK
LEVEL SENSOR
BOTTOM
PX217
J2
TANK
LEVEL SENSOR
MIDDLE
PX230
J3
TANK
LEVEL SENSOR
TOP

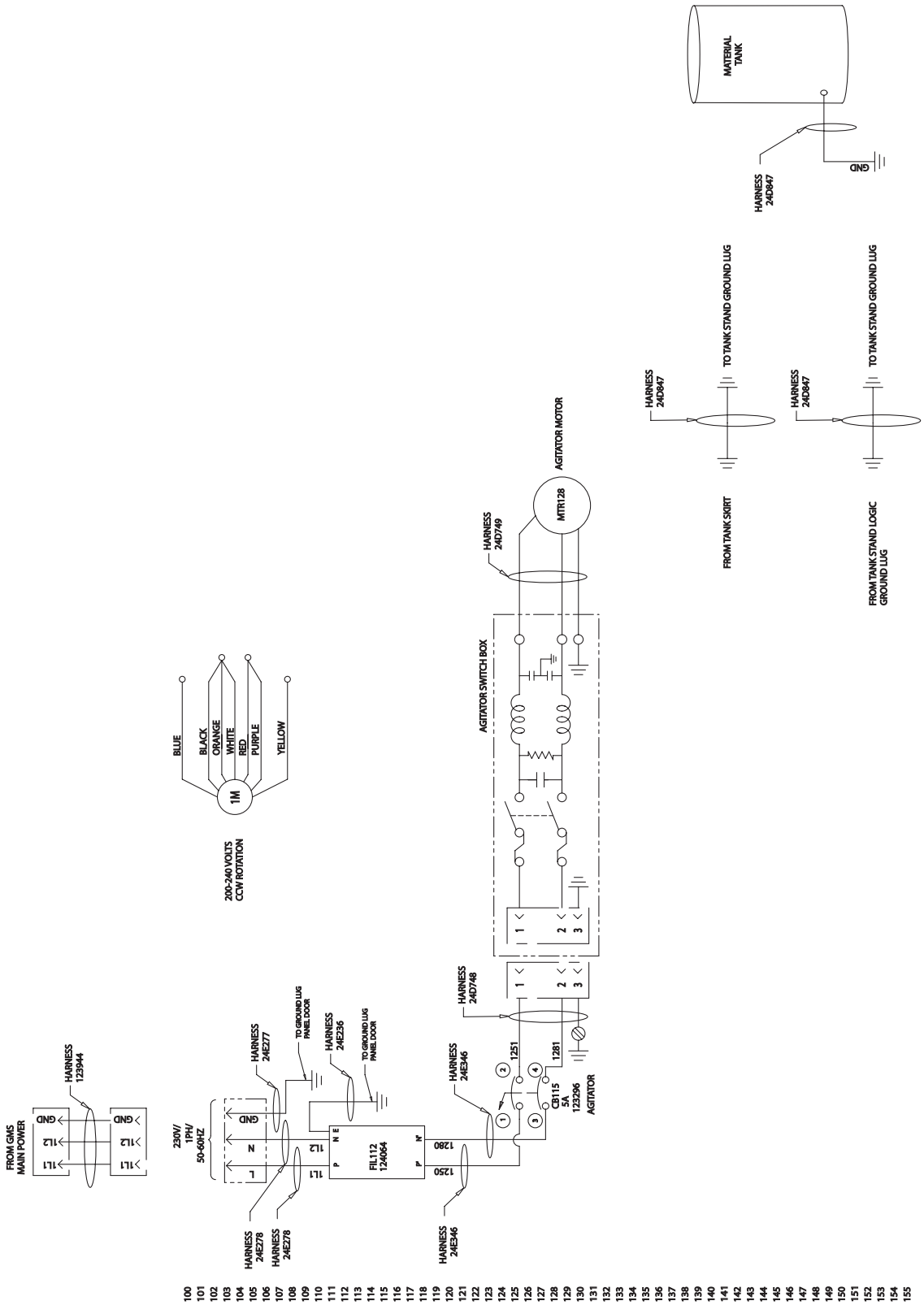
Continued


LOW POWER HEAT
MODULE BACK VIEW
LOW POWER HEAT
MODULE FRONT VIEW
LPH280
USE FOR HEAT BLANKET
USE FOR CHILLER
POWER OUT
POWER IN
HARNESS 121599
HARNESS 123093
HARNESS 121682
HARNESS 121686
HARNESS 121615
HARNESS 24C092
HARNESS 121597
HARNESS 121226
HARNESS 124003
256558
124233
257759
256611
ENCLOSURE DOOR
CAN COM 1
CAN COM 2
EXC
SIGNAL
SW_THERM
RTD_CHILL
RTD_TANK
RTD_BLANKET

Continued


TANK LID
MATERIAL PRESSURE
G-1
PLANT AIR
80 PSIG
100
103
102
REG-1
FL-1
DRY-1
BV-1
CV-1
SOL-223
XFER PUMP-1
107
100
5
4
1
3
2 PLUG
FILL-VALVE
107
OPEN
106
CLOSED

Electrical Panel, Tank Stand with Agitator



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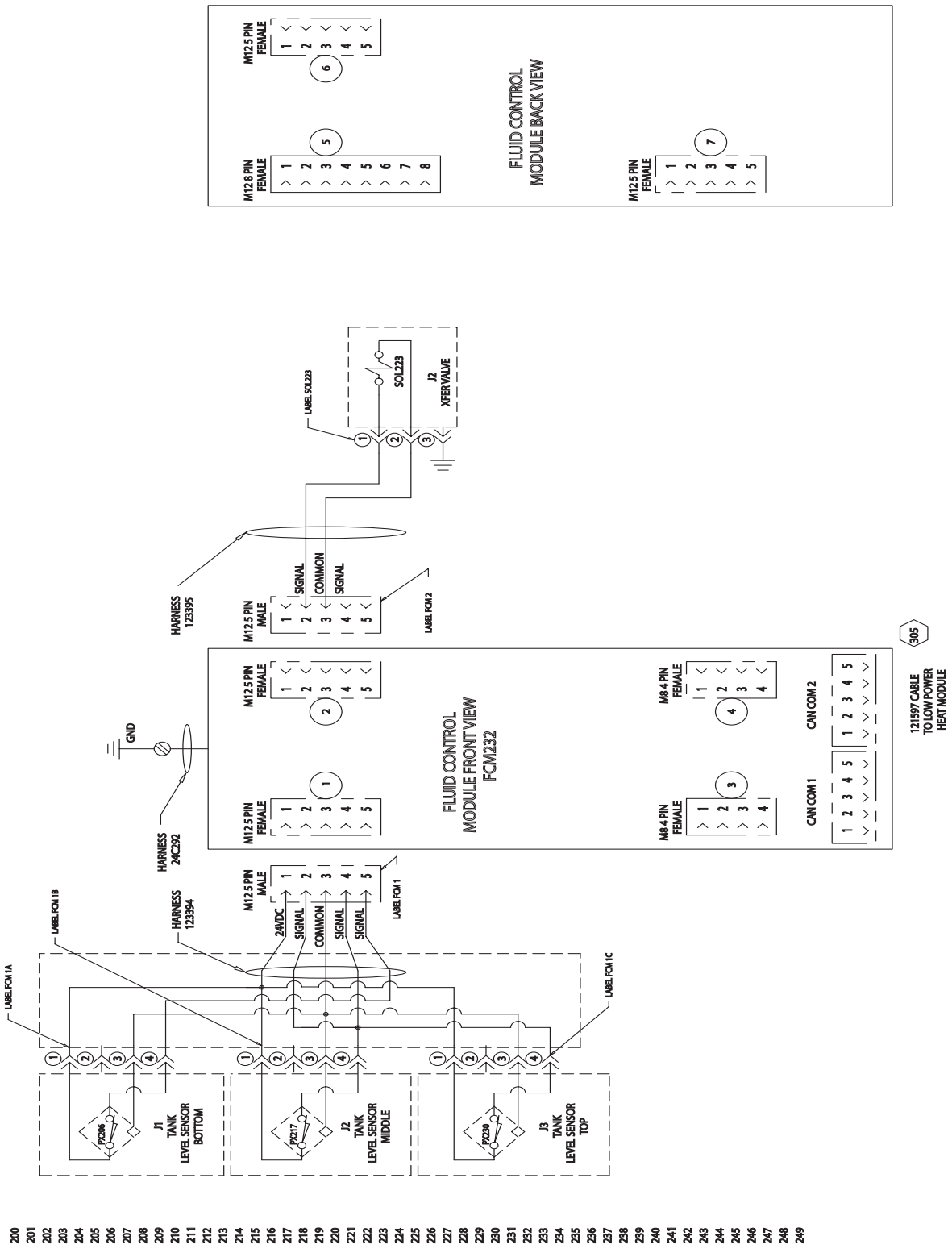
FLUID CONTROL
MODULE BACK VIEW
M12 8 PIN FEMALE
M12 5 PIN FEMALE
M12 5 PIN FEMALE
M12 5 PIN FEMALE
FLUID CONTROL
MODULE FRONT VIEW
FCM232
M12 5 PIN FEMALE
M12 5 PIN FEMALE
M12 5 PIN MALE
M8 4 PIN FEMALE
M8 4 PIN FEMALE
CAN COM 1
CAN COM 2
121597 CABLE
TO LOW POWER
HEAT MODULE
305
HARNESS
24C292
GND
HARNESS
123394
HARNESS
123395
LABEL FCM 1A
LABEL FCM 1B
LABEL FCM 1C
LABEL FCM 1
LABEL FCM 2
LABEL SOL223
24VDC
SIGNAL
COMMON
SIGNAL
SIGNAL
SOL223
J2
XFER VALVE
PX206
J1
TANK
LEVEL SENSOR
BOTTOM
PX217
J2
TANK
LEVEL SENSOR
MIDDLE
PX230
J3
TANK
LEVEL SENSOR
TOP

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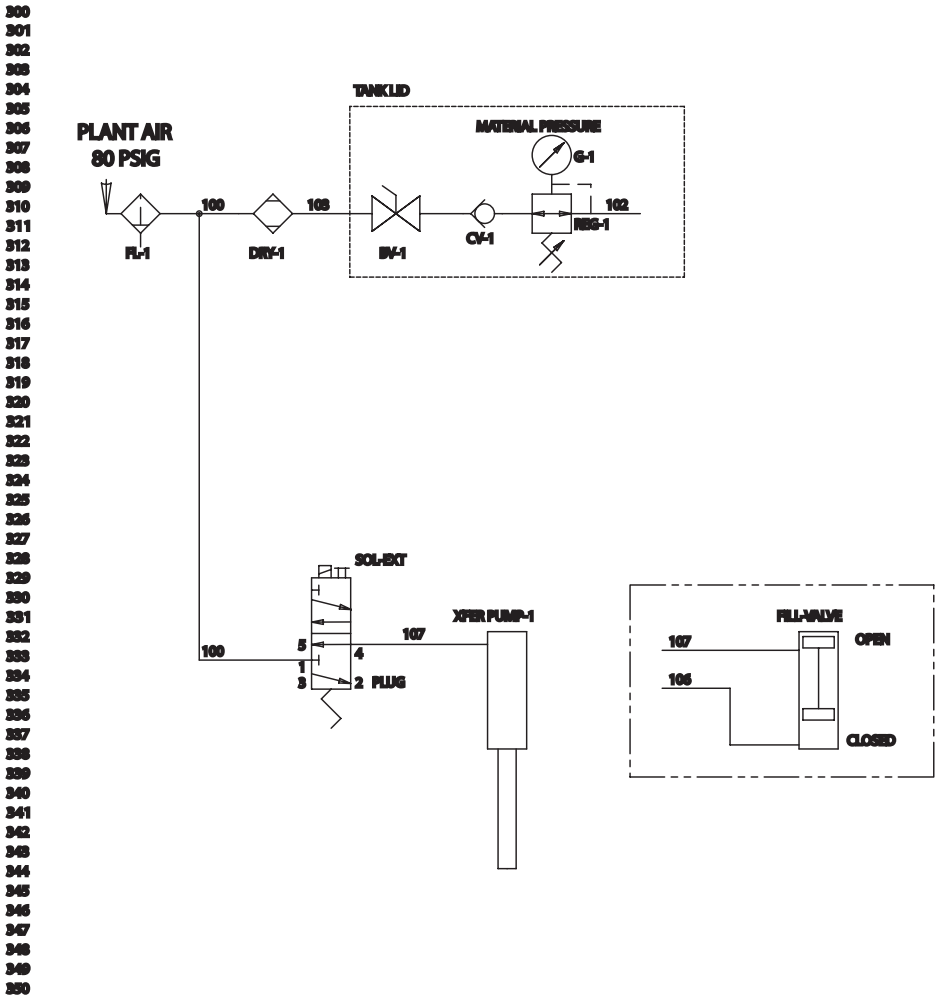
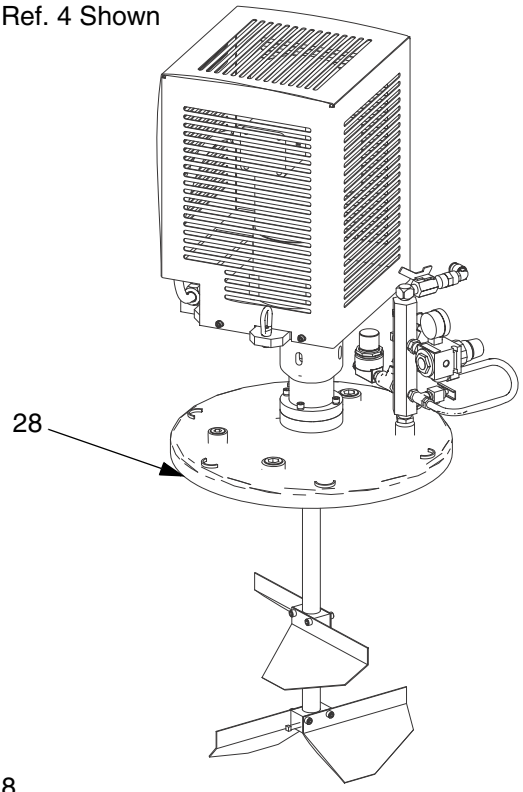

TANK LID
MATERIAL PRESSURE
PLANT AIR
80 PSIG
G-1
100
103
102
RSG-1
CV-1
FL-1
DRY-1
BV-1
SOL-EXT
XFER PUMP-1
107
100
5
4
1
3
2 PLUG
FILL-VALVE
107
OPEN
105
CLOSED

Parts

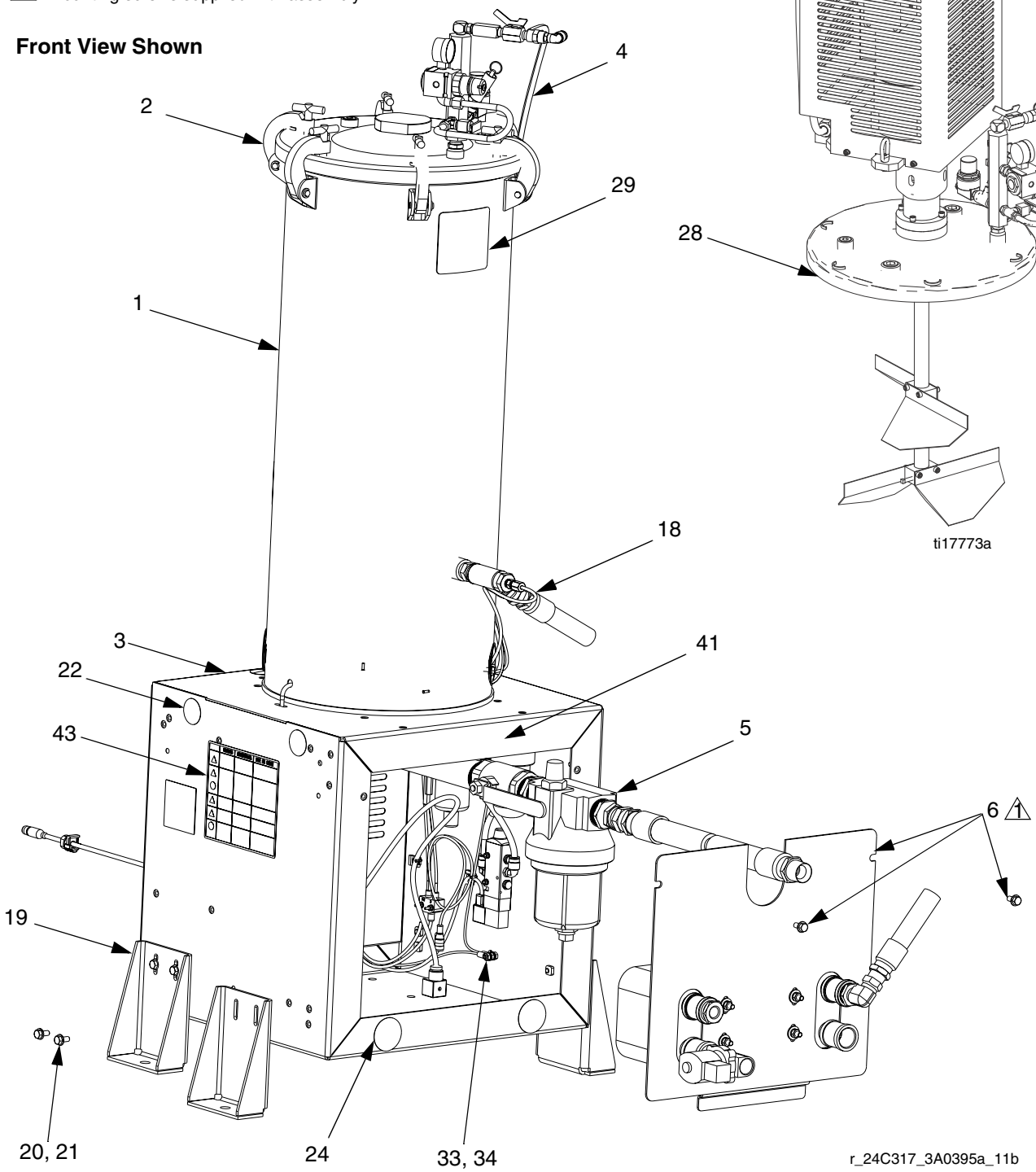
38L and 75L Tank Modules

Ref. 4 Shown



⚠1 Mounting screws supplied with assembly.

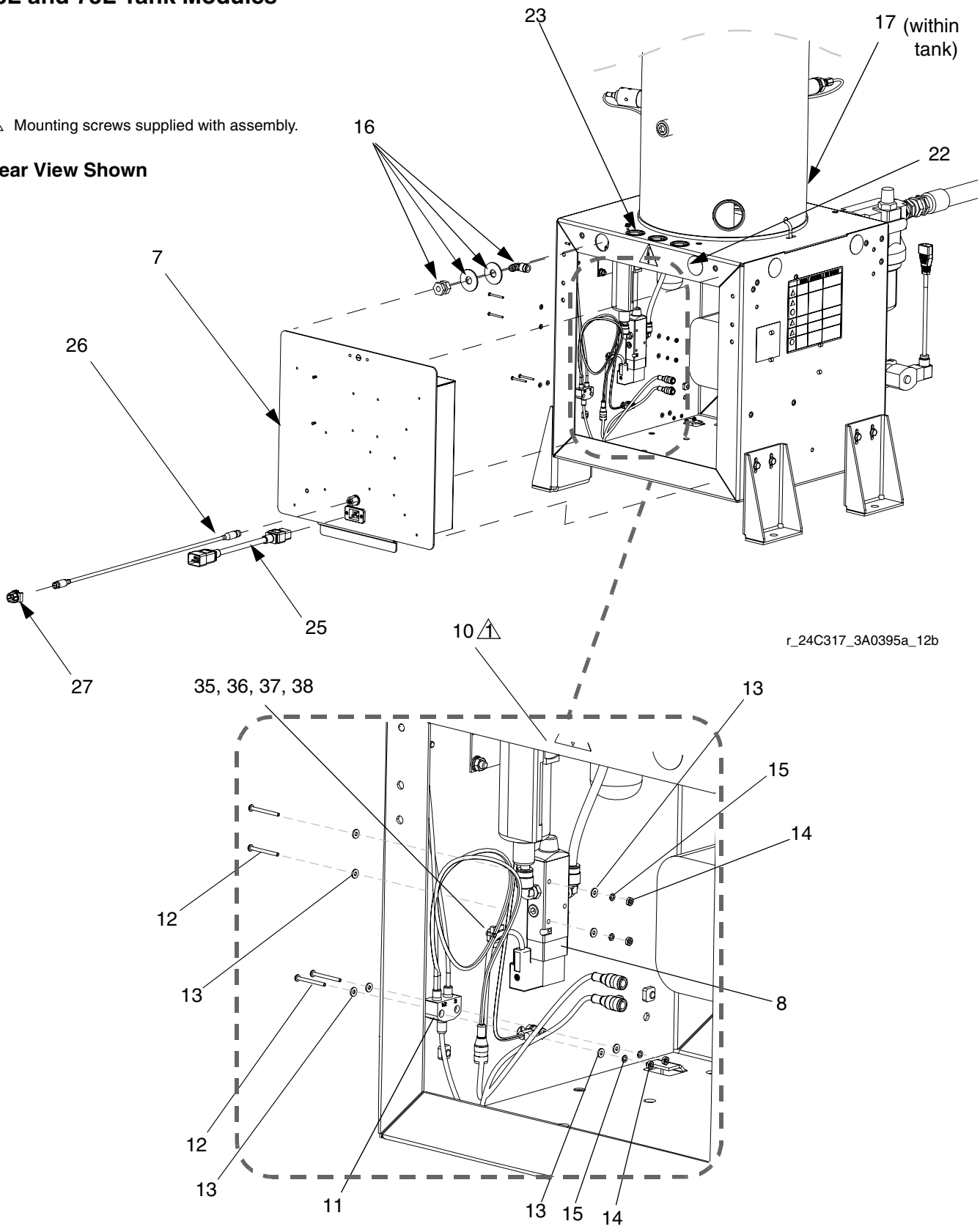
Front View Shown



38L and 75L Tank Modules

⚠1 Mounting screws supplied with assembly.

Rear View Shown



38L and 75L Tank Module Parts

The following tables on this and the next three pages list the varying part numbers, common part numbers, and quantities by tank module assembly.

Ref	Part	Description	Tank Module and Quantity							
			24C317	24D562	24D564	24D565	24D568	24D569	24D570	24D571
1	★	TANK, assy, 38L, sst		1	1		1	1	1	1
		TANK, assy, 75L, sst	1			1				
	★	TANK, assy, heat, 38L, sst								
	★	TANK, assy, heat, 75L, sst								
2		LID, assy, 38L/75L, rim	1	1	1	1	1	1	1	
	★	LID, assy, agitator, vac degas, fill								1
3		ENCLOSURE, frame	1	1	1	1	1	1	1	1
4		LID, assy, plug, 38L/75L, rim		1		1	1	1		
	★	LID, assy, 38L, agitator, rim			1				1	1
		LID, assy, 75L, agitator, rim	1							
5		VALVE, assy, ball; 1-1/2 npt, sst	1	1	1	1				
	★	VALVE, assy, ball; 1-1/2 npt, sst					1	1	1	1
6	24D852★	COVER, assy, tank stand					1	1	1	1
		EXCHANGER, assy, heat, tank, single	1	1	1	1				
7	★	COVER, enclosure, slotted, assy					1			
		PANEL, assy, electric, tank, agit/heat	1	1	1	1				
	★	PANEL, assy, electric, tank, agit						1	1	1
8	24C157	VALVE, assy, power, tank, transfer pump	1	1	1	1		1	1	1
10		FILTER, dryer, assy, tank	1	1	1	1	1	1	1	1
11		SWITCH, assy, level, 2 prox	1	1	1	1		1	1	1
12	117683	SCREW, mach, pan head	4	4	4	4	4	4	4	4
13	107016	WASHER, plain	8	8	8	8	8	8	8	8
14	100072	NUT, hex mscr	4	4	4	4	4	4	4	4
15	100079	WASHER, lock, spring	4	4	4	4	4	4	4	4

Ref	Part	Description	Tank Module and Quantity							
			24C317	24D562	24D564	24D565	24D568	24D569	24D570	24D571
16		FITTING, assy, bulkhead; 1/4 npt	1	1	1	1	1	1	1	1
17		GUARD, trim, edge	29	29	29	29	29	29	29	29
18		PROBE, assy, recirculation, heat exchange	1	1	1	1				
19	24D021	BRACKET, anchor	4	4	4	4	4	4	4	4
20	111800	SCREW, cap, hex head	8	8	8	8	8	8	8	8
22	123398	PLUG, hole; 1.5 in. dia.	5	5	5	5	6	5	5	5
23	123679	BUSHING, wire protector, snap-in	3	3	3	3	2	2	2	2
24	123590	PLUG, hole; 2 in. dia.	2	2	2	2	2	2	2	2
25	123944	HARNESS, power cord, tank stand; 20A	1	1	1	1	1	1	1	1
26	124003	CABLE, CAN, male-female, 5 m	1	1	1	1	1	1	1	1
27	122005	BUSHING, strain relief	1	1	1	1	1	1	1	1
28	257606	PLATE, slinger, 38L/75L								1
29	15G476	LABEL, identification	1	1	1	1	1	1	1	1
30★	123395	HARNESS, power, valve	1	1	1	1				
33	100015	NUT, hex	3	3	3	3	3	3	3	3
34	100985	WASHER, lock	4	4	4	4	4	4	4	4
35	116610	SCREW, mach, pan	4	4	4	4		4	4	4
36	123452	HOLDER, anchor	4	4	4	4		4	4	4
37	100020	WASHER, lock	4	4	4	4		4	4	4
38	100016	NUT, full hex	4	4	4	4		4	4	4
41▲	196548	LABEL, caution	1	1	1	1	1	1	1	1
43▲	15M511	LABEL, warning	1	1	1	1	1	1	1	1

★ *Not shown.*

▲ *Replacement Danger and Warning labels, tags, and cards are available at no cost.*

38L and 75L Tank Module Parts (continued)

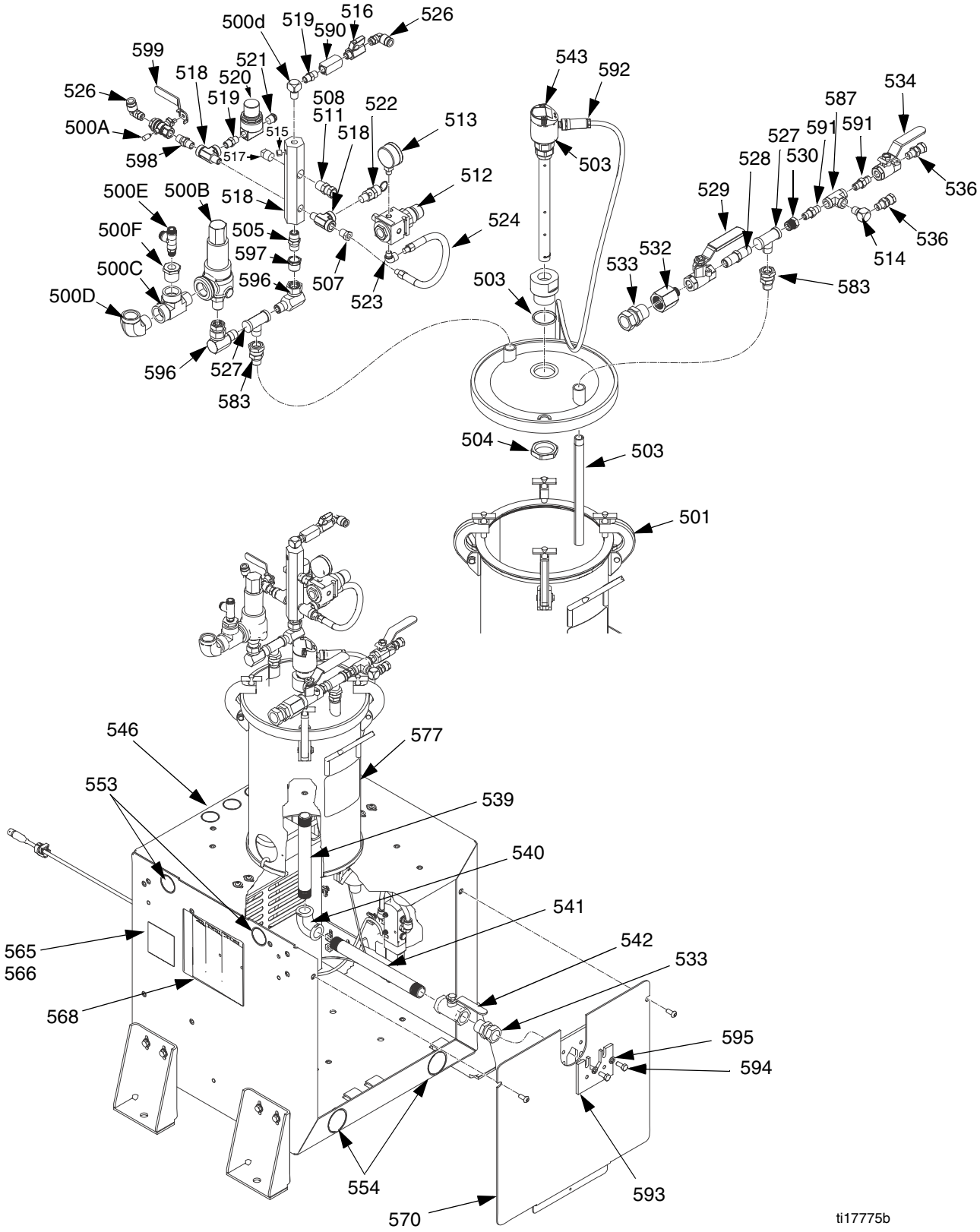
Ref	Part	Description	Tank Module and Quantity								
			24D572	24D573	24D574	24D575	24D576	24D577	24D578	24D579	24P091
1	★	TANK, assy, 38L, sst									
		TANK, assy, 75L, sst			1	1	1	1			
	★	TANK, assy, heat, 38L, sst	1	1							
	★	TANK, assy, heat, 75L, sst							1	1	1
2		LID, assy, 38L/75L, rim		1	1	1	1			1	1
	★	LID, assy, agitator, vac degas, fill	1					1	1		
3		ENCLOSURE, frame	1	1	1	1	1	1	1	1	1
4		LID, assy, plug, 38L/75L, rim			1	1					
	★	LID, assy, 38L, agitator, rim	1	1							
		LID, assy, 75L, agitator, rim					1	1	1	1	1
5	★	VALVE, assy, ball; 1-1/2 npt, sst	1	1	1	1	1	1	1	1	1
6	24D852	COVER, assy, tank stand	1	1	1	1	1	1	1	1	1
		EXCHANGER, assy, heat, tank, single									
7	★	COVER, enclosure, slotted, assy			1						
		PANEL, assy, electric, tank, agit/heat	1	1					1	1	1
	★	PANEL, assy, electric, tank, agit				1	1	1			
8	24C157	VALVE, assy, power, tank, transfer pump	1	1		1	1	1	1	1	1
10		FILTER, dryer, assy, tank	1	1	1	1	1	1	1	1	1
11		SWITCH, assy, level, 2 prox	1	1		1	1	1	1	1	
	24F519 ★	KIT, level sensor, high temperature									3
12	117683	SCREW, mach, pan head	4	4	4	4	4	4	4	4	4
13	107016	WASHER, plain	8	8	8	8	8	8	8	8	8
14	100072	NUT, hex mscr	4	4	4	4	4	4	4	4	4
15	100079	WASHER, lock, spring	4	4	4	4	4	4	4	4	4

Ref	Part	Description	Tank Module and Quantity								
			24D572	24D573	24D574	24D575	24D576	24D577	24D578	24D579	24P091
16		FITTING, assy, bulkhead; 1/4 npt	1	1	1	1	1	1	1	1	1
17		GUARD, trim, edge	29	29	29	29	29	29	29	29	29
18		PROBE, assy, recirculation, heat exchange									
19	24D021	BRACKET, anchor	4	4	4	4	4	4	4	4	4
20	111800	SCREW, cap, hex head	8	8	8	8	8	8	8	8	8
22	123398	PLUG, hole; 1.5 in. dia.	5	5	6	5	5	5	5	5	5
23	123679	BUSHING, wire protector, snap-in	3	3	3	3	3	3	3	3	3
24	123590	PLUG, hole; 2 in. dia.	2	2	2	2	2	2	2	2	2
25	123941	HARNESS, power cord, tank stand; 20A	1	1	1	1	1	1	1	1	1
26	124003	CABLE, CAN, male-female, 5 m	1	1	1	1	1	1	1	1	1
27	124005	BUSHING, strain relief	1	1	1	1	1	1	1	1	1
28	257606	PLATE, slinger, 38L/75L	1					1	1		
29	15G476	LABEL, identification	1	1	1	1	1	1	1	1	1
30★	123395	HARNESS, power, valve									1
33	100015	NUT, hex	3	3	3	3	3	3	3	3	3
34	100985	WASHER, lock	4	4	4	4	4	4	4	4	4
35	116610	SCREW, mach, pan	4	4		4	4	4	4	4	4
36	123452	HOLDER, anchor	4	4		4	4	4	4	4	4
37	100020	WASHER, lock	4	4		4	4	4	4	4	4
38	100016	NUT, full hex	4	4		4	4	4	4	4	4
41▲	196548	LABEL, caution	1	1	1	1	1	1	1	1	1
43▲	15M511	LABEL, warning	1	1	1	1	1	1	1	1	1
44★	123394	HARNESS, sensor, level, tank, (3)									1

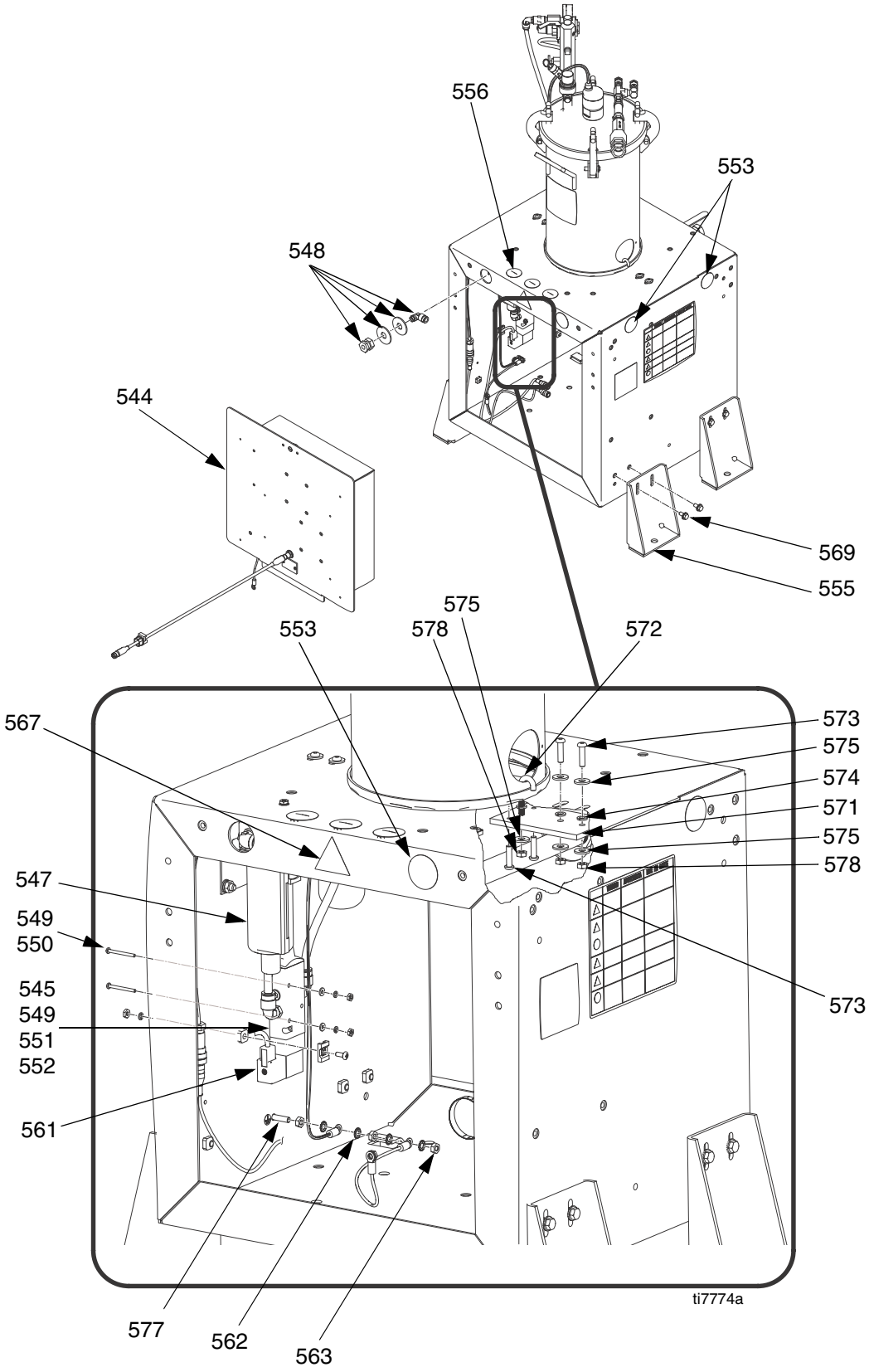
★ *Not shown.*

▲ *Replacement Danger and Warning labels, tags, and cards are available at no cost.*

2 Gallon Tank Module - 24J243



2 Gallon Tank Module (continued)



2 Gal Tank Module (continued)

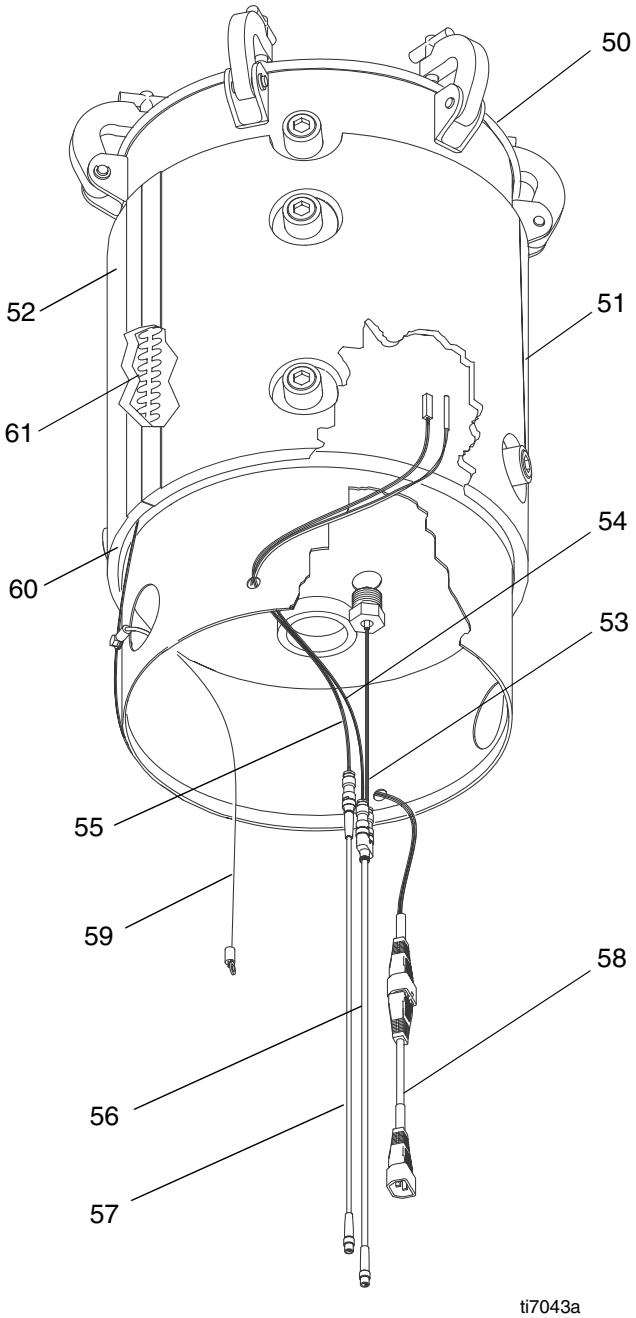
Ref.	Part	Description	Qty.
501	236086	TANK, pressure assy, 2 gal	1
502	125312	PACKING, o-ring	1
503	16H698	ADAPTER, sensor, ultrasonic	1
504	188784	NUT, jam, hex	1
505	156849	PIPE, nipple	1
506	189016	MANIFOLD, air, inlet	1
507	100030	BUSHING	1
508	110476	ADAPTER, union, straight swivel	1
509	110475	FITTING, street, tee	1
510	101759	FITTING, drain cock	1
511	151519	FITTING, nipple, reducing	1
512	110341	REGULATOR, air	1
513	124339	GAUGE, press, 0-160psi	1
514	100840	FITTING, elbow, street	1
515	100139	PLUG, pipe	1
516	208390	VALVE, ball	1
517	104813	PLUG, pipe	1
518	123256	FITTING, tee, 1/4npt	1
519	123257	FITTING, nipple, hex	2
520	123258	FITTING, valve, bleed	1
521	121021	MUFFLER	1
522	103347	VALVE, safety, 100 psi	1
523	112307	ELBOW, street	1
524	164724	HOSE, coupled	1
525	121089	FITTING, nipple	1
526	121018	FITTING, elbow, male, swivel	1
527	111928	TEE, male branch pipe	1
528	191931	NIPPLE	1
529	114243	VALVE, check	1
530	125214	BUSHING, hex	1
532	125213	ADAPTER, reducer	1
533	112268	SWIVEL, union	2
534	501867	VALVE, check	1
536	262206	FITTING, swivel	2
539	125217	FITTING, nipple	1
540	102325	FITTING, elbow, 90 degrees	1
541	125218	FITTING, nipple	1
542	122770	VALVE, ball	1
543	24N004	SENSOR, ultrasonic, programmed	1
544	24H179	PANEL, gms, tank, levels only	1
545	24C157	VALVE, assy, pwr, tank, xfer pump	1
546	257965	ENCLOSURE, frame, painted	1
547	24C159	FILTER, dryer, assy, tank	1
548	24C228	FITTING, assy, bulkhead,	1
549	107016	WASHER, plain	4
550	117683	SCREW, mach	2
551	100079	WASHER, lock, spring	2
552	100072	NUT, hex mscr	2
553	123398	PLUG, hole, 1.5"dia	5
554	123590	PLUG, hole, 2" dia	4
555	16A221	BRACKET, anchor	4
556	124334	PLUG, hole, 1.375"dia, blk	3
★557	123452	HOLDER, anchor, wire tie, nylon	4
★558	116610	SCREW, mach, phil, pan, #10	4
★559	100020	WASHER, lock	4
★560	100166	NUT, full hex	4
561	123395	HARNESS, pwr valve, tank	1
★564	24D847	HARNESS, ground, tank	1
565	16D782	BLANK, label, kit, 3x3	1
▲567	196548	LABEL, caution	1
▲568	15M511	LABEL, warning, eng/span/fre	1
569	111800	SCREW, cap, hex hd	8
570	24D852	COVER, assy, tank stand, blank	1
571	16H696	PLATE, mtg, tank, 2gal	2
572	125221	BOLT, "j", 1/4-20	2
573	112689	SCREW, button hd	4
574	100016	WASHER, lock	3
575	100527	WASHER, plain	5
▲577	15G476	LABEL, a-b identification	2
578	100015	NUT, hex mscr	3
★580	123673	HARNESS, ext, m12xm12	1
581	123424	GUARD, trim, edge	2.5
582	185531	TUBE, siphon	1
583	235208	FITTING, union, swivel	1
584	155665	UNION, adapter	1
585	24C656	HOSE, coupled, 10 ft, sst	1
586	166866	FITTING, elbow, street, sst	1
587	124962	FITTING, tee	1
590	125848	VALVE, check, 1/4 npt, 250 psi, brass	1
591	121907	FITTING, nipple, hex, 1/4 npt, stainless steel, swivel	2
592	126135	HARNESS, M12xM12, 8-pin x 5 pin, female x male, 1.5 meter	1
593	24N437	BRACKET, filter, 2 gallon tank	2
594	100057	SCREW, cap, hex head	2
595	112904	WASHER, lock, spring	2
596	217430	FITTING, swivel, union, 90 degree	2
597	100081	BUSHING, pipe	1
598	156971	FITTING, nipple, short	1
599	6311-381	VALVE, 1/4 ball valve with relief	1
500A	6312-74	MUFFLER, silencer	1
500B	126302	VALVE, chemical relief	1
500C	16F259	FITTING, run tee, 3/4 npt	1
500D	122327	FITTING, elbow, street	1
500E	123376	FITTING, tee, run, 1/4 tube x 1/4 npt, brass	1
500F	100615	BUSHING, hex steel	1

★ *Not shown.*

▲*Replacement Danger and Warning labels, tags, and cards are available at no cost.*

Heated Tank Assemblies

38L and 75L Heated Tank Assemblies



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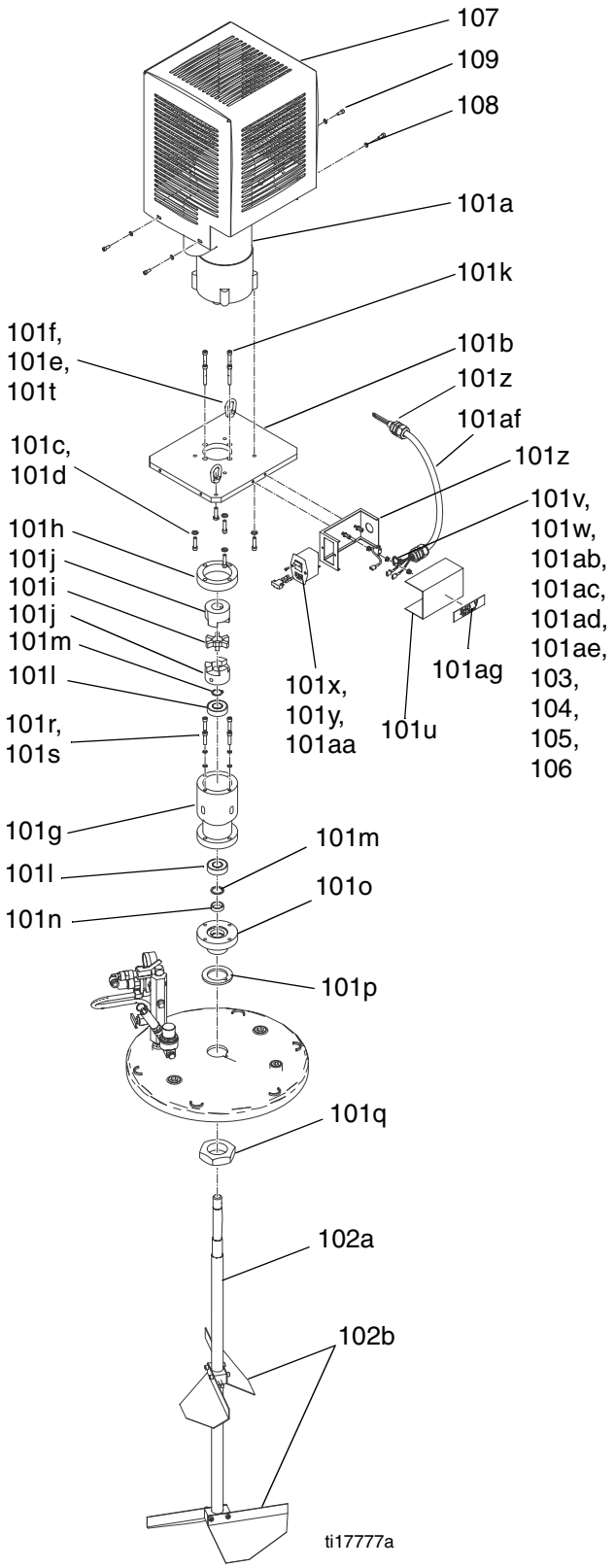
Ref.	Part	Description	Qty.
50		TANK, assy.	1
	✓257762	38L, SST	
	◆257772	75L; SST	
51		INSULATOR, blanket assy.	1
	✓257757	38L	
	◆257758	75L	
52		BLANKET, assy., heat	1
	✓257760	38L, 240V	
	◆257761	75L, 240V	
53	257759	SENSOR, thermowell assy., RTD	1
54	256611	SENSOR, assy.; 1.5 in., RTD, 4-pin m8	1
55	256558	SWITCH, assy., thermal; 125c, 3p, m8	1
56	121615	HARNESS, splitter; m8, 4-pin ffm, 3m	1
57	121682	CABLE; m8, 3-pin, mf, 3 meter, molded	1
58	121599	CORD, power, v-lock; c14/c13,10A	1
59	24D847	HARNESS, ground, tank	1
60	124270	TAPE, fiberglass; 6 ft.	-
61	261076	TIE, hose lacing; 6 ft.	-

✓ *38L heated tank assemblies only.*

◆ *75L heated tank assemblies only.*

Tank Lid Assemblies

Lid with Agitator

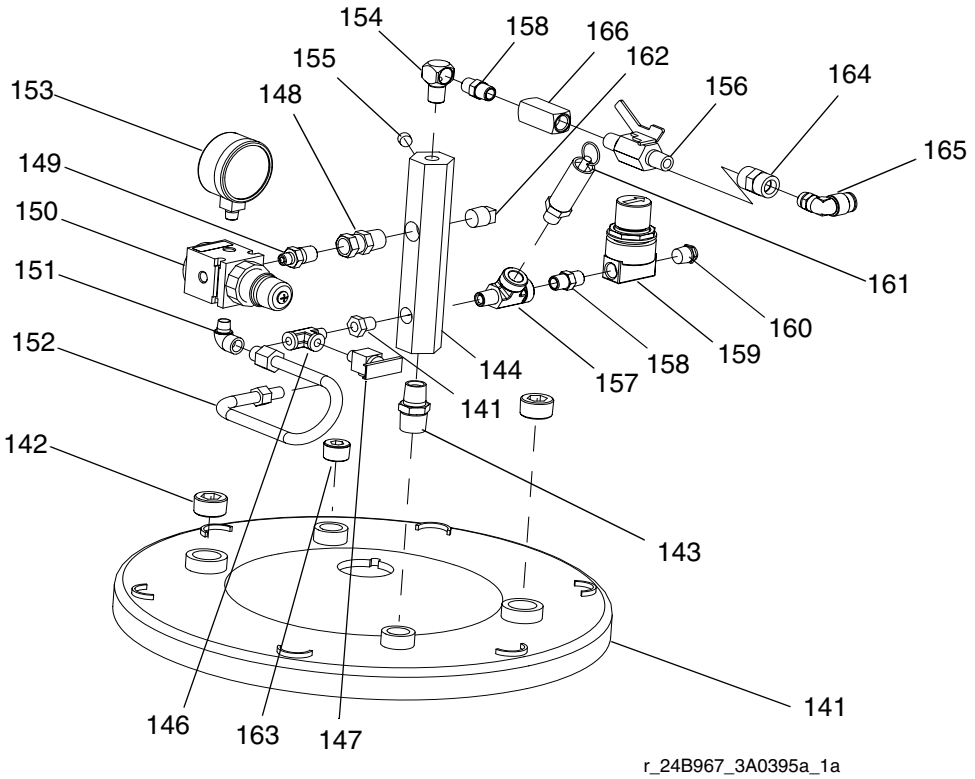


Lid with agitator for 38L tanks
Lid with agitator for 75L tanks

Ref	Part	Description	Qty
101	257605	HOUSING, agitator	1
. 101a	124741	MOTOR, agitator	1
. 101b	16K267	ADAPTER, plate, agitator motor	1
. 101c	158223	WASHER	4
. 101d	108803	SCREW, hex	4
. 101e	100021	SCREW, cap	2
. 101f	122775	NUT, eye, 1/4-20	2
. 101g	15Y358	HOUSING, upper, agitator	1
. 101h	15V746	SPACER, agitator	1
. 101i	122760	COUPLING, alignment	1
. 101j	122761	HOSE, alignment	2
. 101k	101885	SCREW, cap	4
. 101l	122774	BEARING, ball	2
. 101m	15Y360	SPACER, seal, shaft	1
. 101n	122772	SEAL	1
. 101o	15Y357	HOUSING, lower	1
. 101p	15Y363	GASKET	1
. 101q	15Y355	NUT, shaft	1
. 101r	105510	WASHER, lock	4
. 101s	112222	SCREW, cap	4
. 101t	100985	WASHER, lock	2
. 101u	15R328	JUNCTION BOX, motor switch	1
. 101v	111307	WASHER, lock	2
. 101w	102598	SCREW, cap	2
. 101x	120910	SOCKET, electrical	1
. 101y	120916	SCREW	2
. 101z	121172	GRIP, cord	2
. 101aa	115142	FUSE, 5.0 amp, time lag	2
. 101ab▲	125008	LABEL, earth ground	1
. 101ac	121013	SCREW, socket head	1
. 101ad	120993	NUT, hex	3
. 101ae	24H375	HARNESS, ground	1
. 101af	24H376	HARNESS, power	1
. 101ag▲	15X092	LABEL, 240 volts	1
1702	257608	BLADE, assy	1
. 102a	257604	BLADE, assy, 38L/75L	2
. 102b	15M625	SHAFT, blade assy	1
1703	122776	TERMINAL, ring	1
1704	124436	CAP, splice	3
1705	124437	CONNECTOR, splice	3
1706	124442	TERMINAL, ring	1
1707	24K356	COVER, motor	1
1708	116876	WASHER	4
1709	102598	SCREW, cap	4

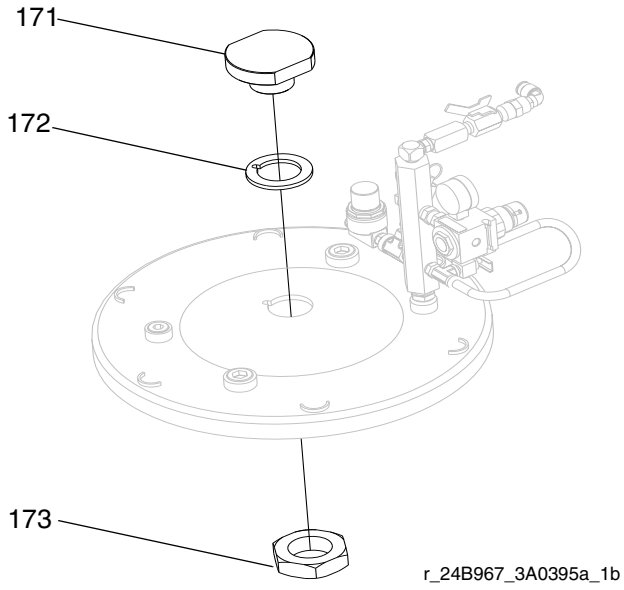
▲ *Replacement Danger and Warning labels, tags, and cards are available at no cost.*

Lid Assembly



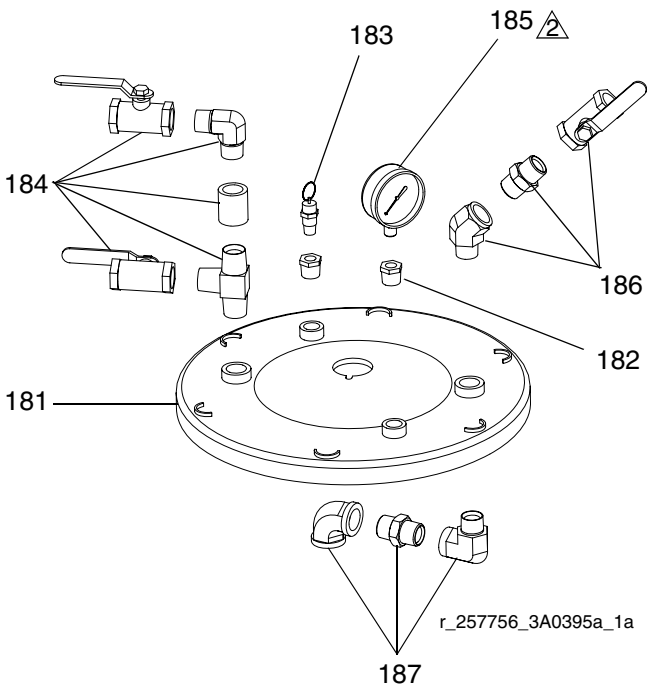
Ref.	Part	Description	Qty.
141	15M621	LID, agitator	1
142	111384	PLUG, pipe	2
143	159239	NIPPLE, pipe	1
144	189016	MANIFOLD, air, inlet	1
145	100030	BUSHING	1
146	110475	FITTING, street, tee	1
147	101759	FITTING, drain	1
148	110476	ADAPTER, union, straight swivel	1
149	151519	NIPPLE, reducing	1
150	110341	REGULATOR, air	1
151	112307	ELBOW, street	1
152	164724	HOSE, coupled	1
153	124339	GAUGE, pressure, air	1
154	100840	ELBOW, street	1
155	100139	PLUG, pipe	1
156	208390	VALVE, ball	1
157	123256	FITTING, tee; 1/4 npt	1
158	123257	NIPPLE, hex; 1/4 npt	2
159	123258	VALVE, bleed; 1/4 npt	1
160	121021	MUFFLER; 1/4 npt	1
161	103347	VALVE, safety; 100 psi	1
162	104813	PLUG, pipe	1
163	100361	PLUG, pipe	1
164	121089	COUPLING; 1/4 npt, f-f	1
165	121018	ELBOW, male, swivel; 1/4 npt	1
166	125848	VALVE, check, 1/4npt	1

Plug Assembly for Lid



Ref.	Part	Description	Qty.
171	16A354	PLUG	1
172	15Y363	GASKET, mounting	1
173	15Y355	NUT	1

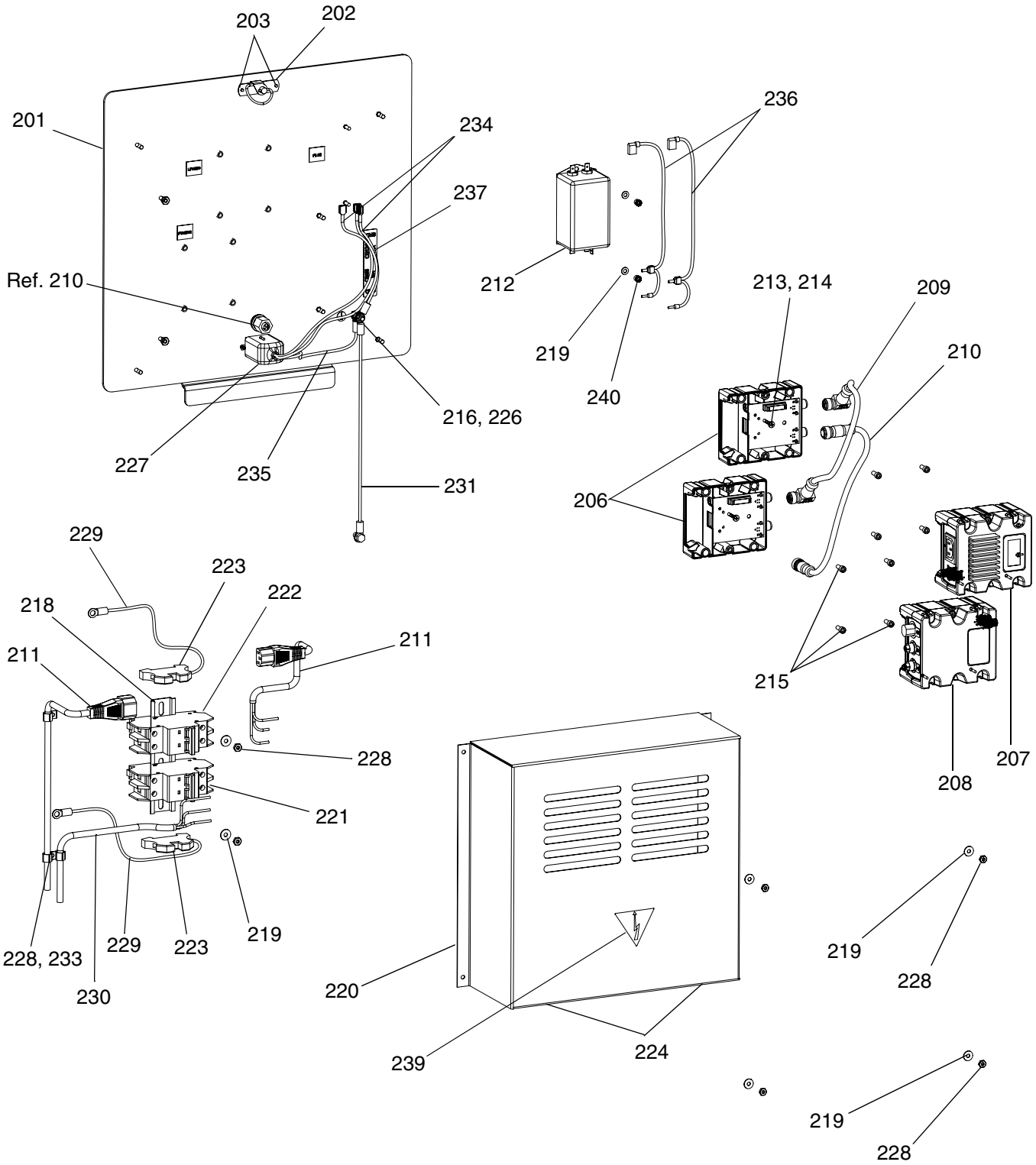
Vacuum Degas Lid Assembly



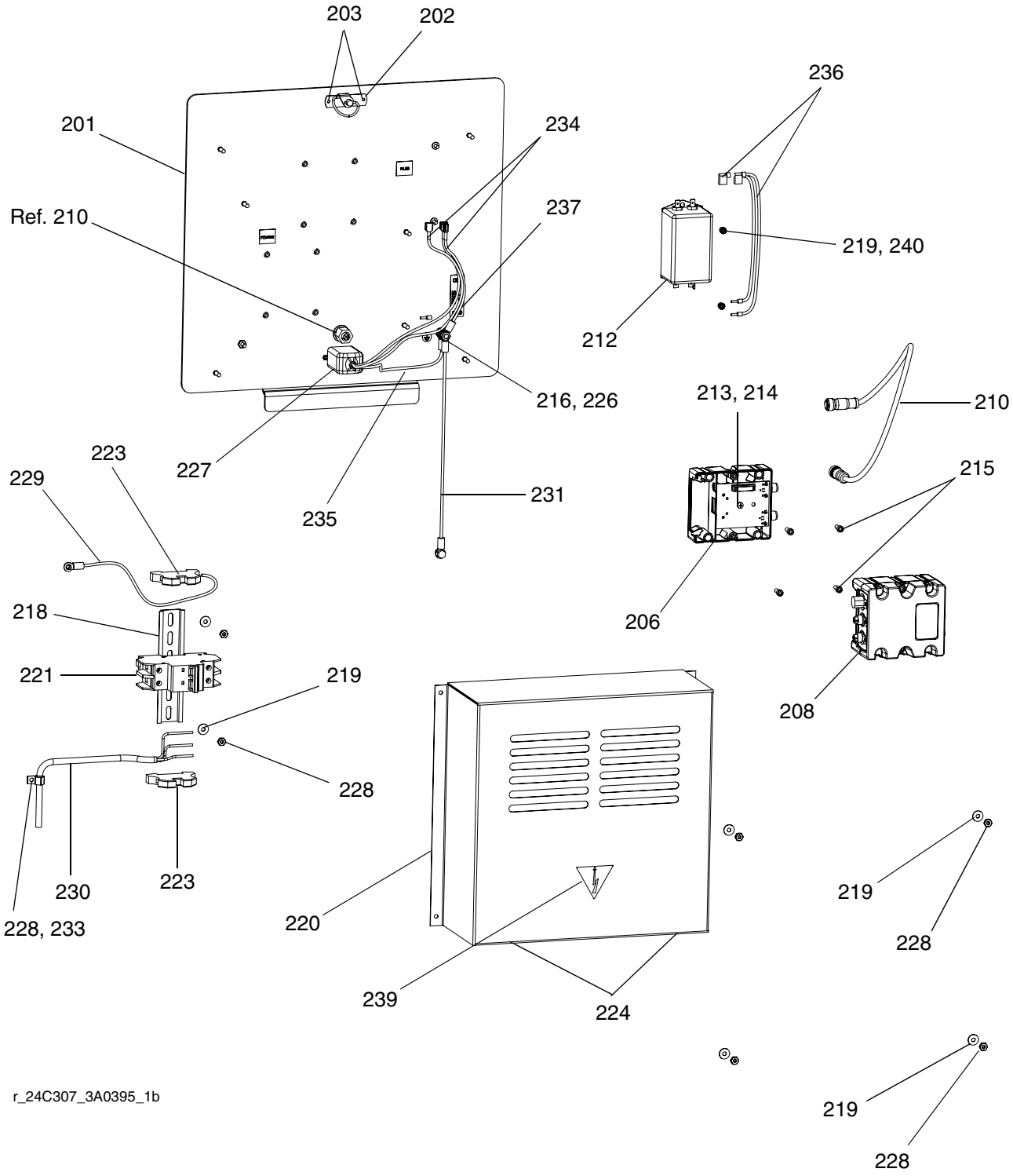
2 Apply thread sealant and PTFE thread tape.

Ref.	Part	Description	Qty.
181	15M621	LID, agitator	1
182	122767	BUSHING,; 1/2 x 1/4 npt	2
183	103347	VALVE, safety; 100 psi	1
184	257746	KIT, vacuum tree	1
185	124400	GAUGE, pressure/vac	1
186	257602	VALVE, assy., ball, fill; 3/4 SST	1
187		FITTING, assy., inner fill port	1

Electrical Panel, 230V for Heat



Electrical Panel, 230V for No Heat



Electrical Panel, 230V for Heat Parts
Electrical Panel, 230V for No Heat Parts

Ref.	Part	Description	Qty.
201		COVER, enclosure	1
202	117644	LATCH, spring, slotted	1
203	102556	RIVET, blind	2
204★	123352	PLUG, inlet, electric	1
205★	102410	SCREW, cap socket head	2
206	289697	MODULE, cube, base	2
207❖	256270	MODULE, low power temp	1
208	289696	MODULE, fluid control	1
209❖	121597	CABLE, CAN 90 female / 90 female, 0.4 meter	1
210	121226	CABLE,CAN, male / female, 0.4m	1
211❖	24D747	HARNESS, power, cube, heat/chiller	1
212	124064	FILTER	1
213	114993	SCREW, machine pan head	2
214	102063	WASHER, lock, ext	2
215	113003	SCREW, cap, socket head	8
216	100015	NUT, hex	2
218		RAIL, mounting, din; 35mm, 6 in.	1
219	112776	WASHER, plain	6
220		ENCLOSURE	1
221	123296	CIRCUIT, breaker; 2P, 5A	1
222❖	123297	CIRCUIT, breaker; 2P, 10A	1
223	123363	BLOCK, terminal, ground; 10mm	2
224	123381	TRIM, serrated	12
225★	121612	CONNECTOR, thru; m12, m x f	1
226	100985	WASHER, lock ext	3
227	123351	COVER, inlet	1
228	100166	NUT, full hex	8
229	24C292	HARNESS, ground, strap, cube	2
230	24D748	HARNESS, power, cube	1
231	24D847	HARNESS, ground, tank	1
232	123944	HARNESS, power cord, tank stand; 20A	1
233	124338	CLAMP, harness; 3/8 in., nylon	3
234	24E278	HARNESS, filter, power in	2
235	24E277	HARNESS, power in/ground	2
236	❖24E279	HARNESS, filter/breaker	2
	†24E346	HARNESS, filter/breaker, single	
237		LABEL, identification	1
238	24E236	HARNESS, filter/ground	1
239▲	196548	LABEL, caution	1
240	124337	NUT, allen	2

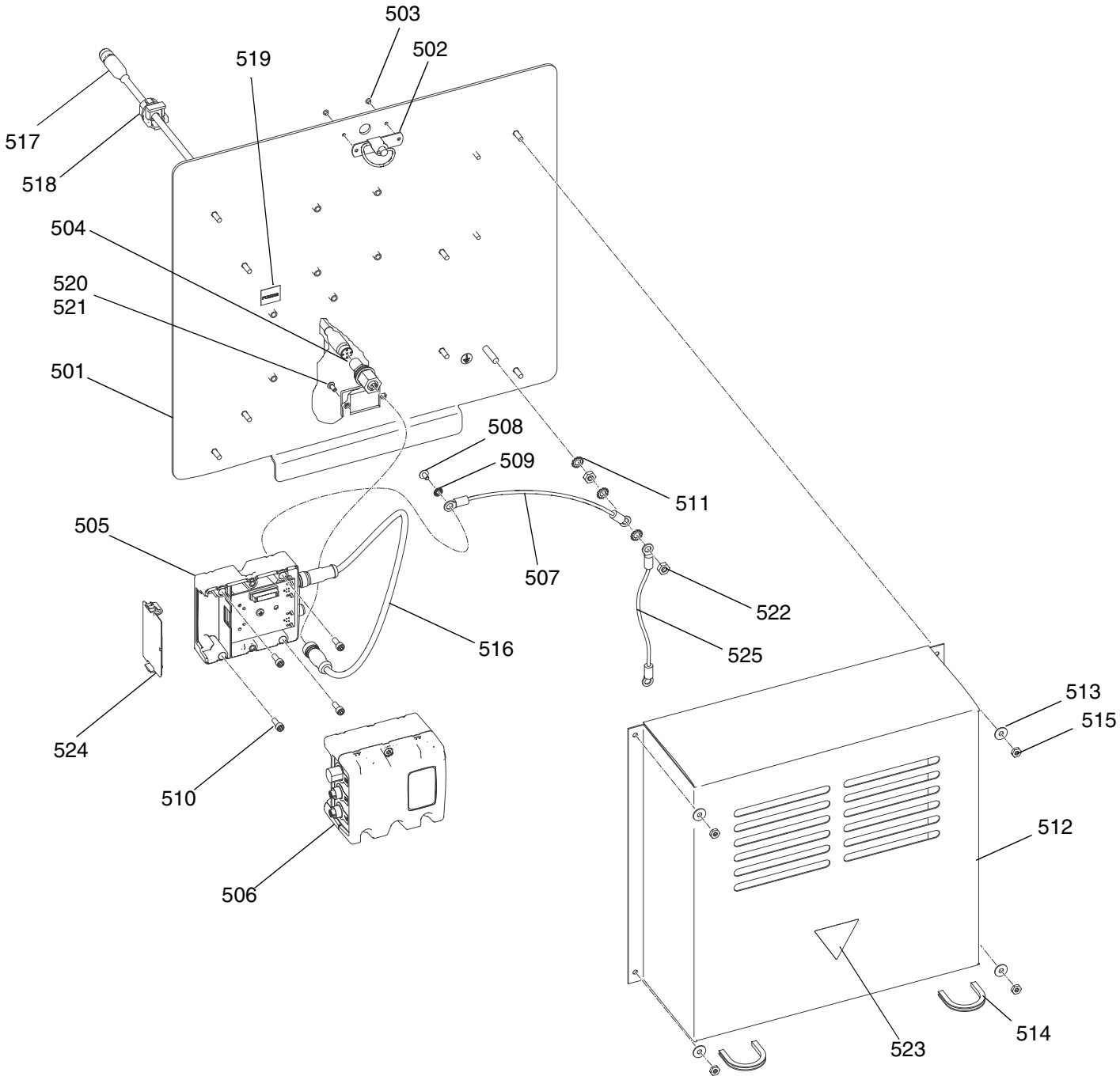
★ *Not shown.*

▲ *Replacement Danger and Warning labels, tags, and cards are available at no cost.*

❖ *Included in electrical panel for heat only.*

† *Included in electrical panel for no heat only.*

Electrical Panel, 230V for 2 Gallon Tanks Only

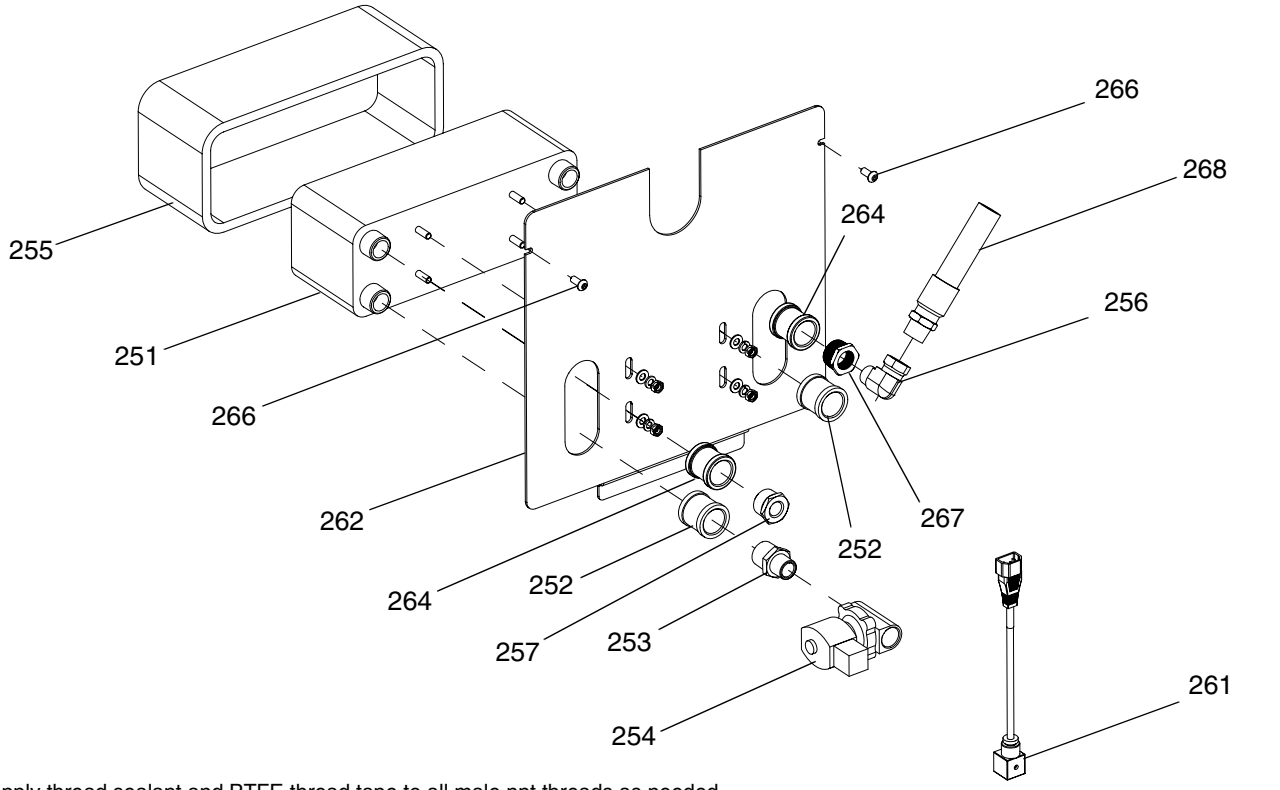


ti7778a

Ref.	Part	Description	Qty.
501	24C116	COVER, enclosure, electrical, tank	1
502	117644	LATCH, spring, slotted	1
503	102556	RIVET, blind	2
504	121612	CONNECTOR, thru, m12, mxf	1
505	289697	MODULE, gca, cube, base	1
506	289696	MODULE, gca, cube, fcm	1
507	24H240	HARNESS, wire, ground, term, 9"	1
508	102063	WASHER, lock, ext	1
509	114993	SCREW, mach, pan wash hd	1
510	102598	SCREW, cap, socket head	4
511	100985	WASHER, lock ext	3
512	24C115	ENCLOSURE, elec, tank stand	1
513	112776	WASHER, plain	4
514	123381	TRIM, serrated	2
515	100166	NUT, full hex	4
516	121226	CABLE, can, male / female, 0.4m	1
517	121000	CABLE, can, female / female 0.5m	1
518	124005	BUSHING, strain relief	1
519▲	16D656	LABEL, identification, electronics	1
520	24H241	COVER, electrical	1
521	15U075	SCREW, cap, bh, 8-32 x .37	2
522	100015	NUT, hex mscr	2
523▲	196548	LABEL, caution	1
524	277674	ENCLOSURE, cube door	1
525	24D847	HARNESS, ground, tank	1

▲ *Replacement Danger and Warning labels, tags, and cards are available at no cost.*

Heat Exchanger Assembly



2 Apply thread sealant and PTFE thread tape to all male npt threads as needed.

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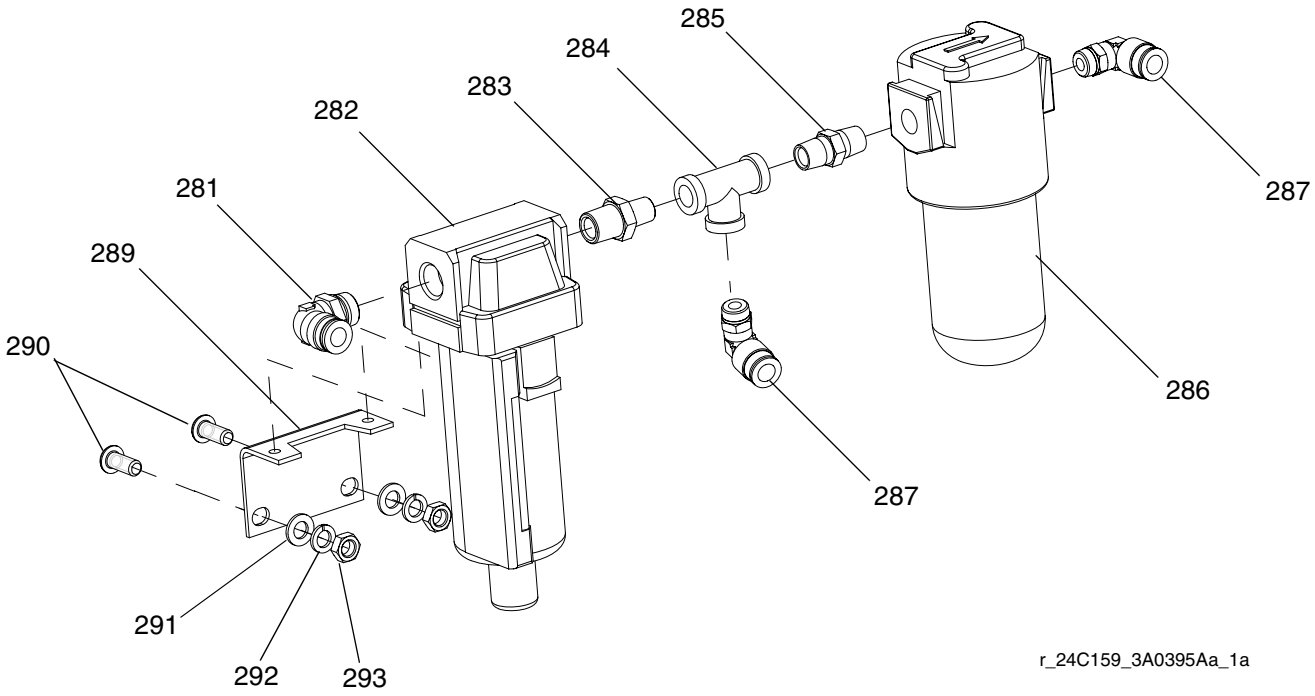
Ref.	Part	Description	Qty.
251	123072	EXCHANGER, heat, tank, 0.50 plates	1
252	123071	COUPLING, pipe; 1 in. npt, ff	2
253	123073	NIPPLE, hex; 1 in. npt x 3/4 in. npt	1
254	123028	VALVE, solenoid; 240V	1
256	123998	ELBOW; 3/4 in. npt x 3/4 in. nps, m x f	1
257	513299	BUSHING, reducer	1
261	123093	HARNESS, valve, chiller; 230V	1
262		COVER, enclosure, heat exchange	1
264	123996	COUPLING, 1 in. npt, sst	2
266	111800	SCREW, cap, hex head	2
267	123997	ADAPTER, 1 in. npt x 3/4 in. npt, m x f, sst	1
268	221170	HOSE, coupled; 3 ft	1

Air Dryer Filter



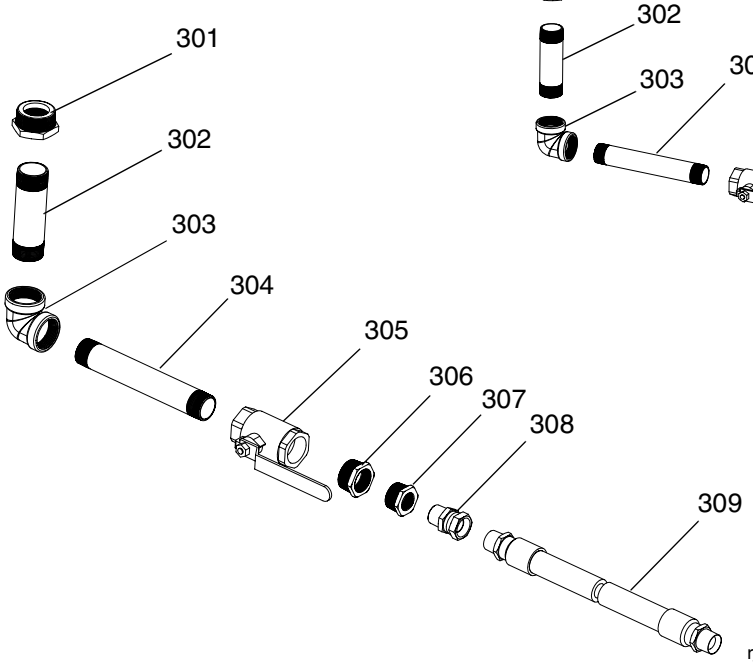
2 Apply thread sealant and PTFE thread tape to all male npt threads as needed.

Ref.	Part	Description	Qty.
281	121019	ELBOW, male, swivel; 3/8 npt	1
282	123377	FILTER, air; 3/8 npt	1
283	123379	FITTING, reducer; 3/8 npt x 1/4 npt	1
284	104984	FITTING, tee, pipe	1
285	156971	NIPPLE, short	1
286		DRYER, air, with desiccant; 1/4 npt	1
287	121018	ELBOW, male, swivel; 1/4 npt	2
288	123376	FITTING, tee, run; 1/4 tube x 1/4 npt	1
289	123380	BRACKET, filter, air; 3/8 npt	1
290	112944	SCREW, cap, button head	2
291	107194	WASHER, plain	2
292	100214	WASHER, lock	2
293	111303	NUT, hex	2
295★	054106	TUBE, PET; 0.375 OD	-

★ *Not shown.*

Ball Valve Assemblies

Ball Valve Assembly



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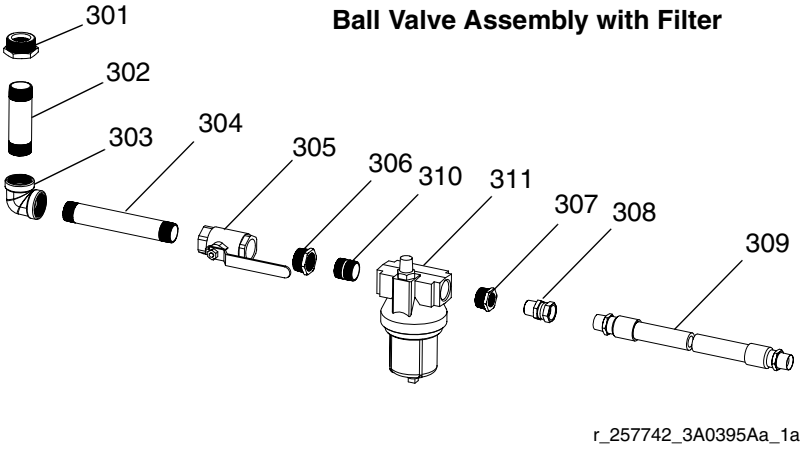
Ball Valve Assembly with Filter

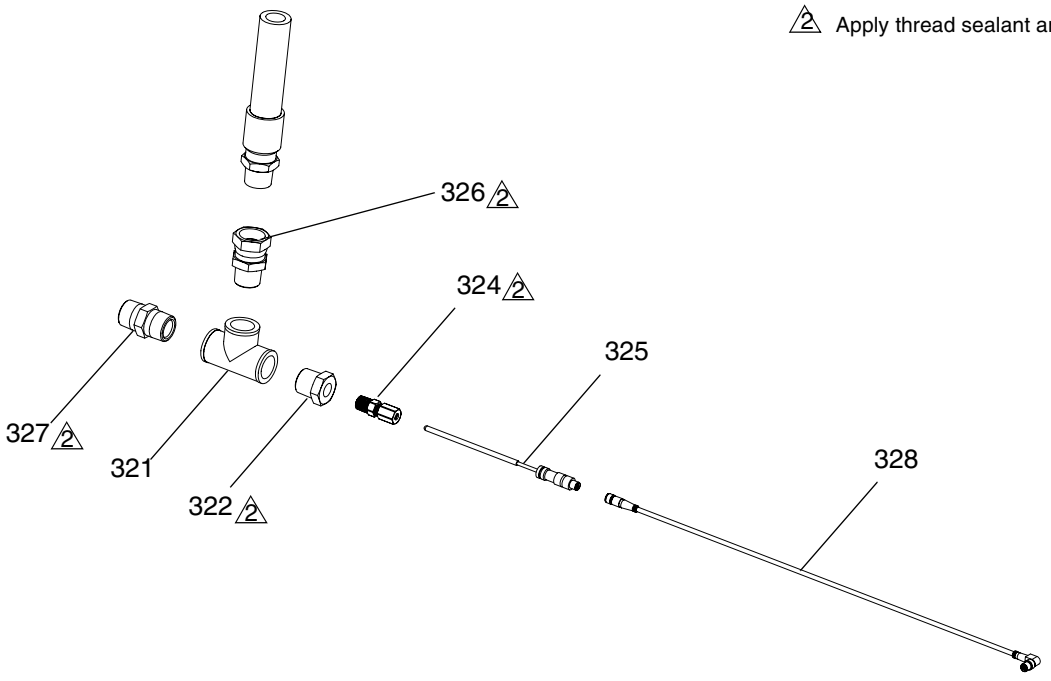


r_257742_3A0395Aa_1a

2 Apply thread sealant and PTFE thread tape to all male npt threads as needed.

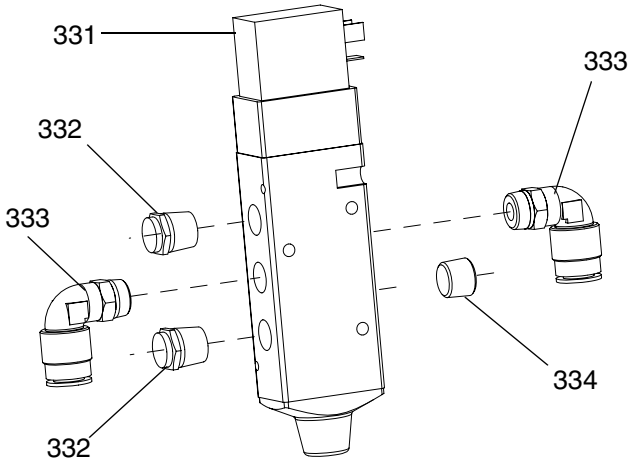
Ref.	Part	Description	Qty.
301	121136	BUSHING, hex; 2 in. npt x 1-1/2 in. npt	1
302	123001	NIPPLE; 1-1/2 x 6 in., sst	1
303	123003	ELBOW; 1-1/2 x 1-1/2, f x f, sst	1
304	123000	NIPPLE; 1-1/2 x 10 in., sst	1
305	121135	VALVE, ball; 1-1/2 npt full port	1
306	123002	BUSHING; 1-1/2 npt x 1-1/4 npt	1
307	123348	BUSHING; 1-1/4 npt x 1 npt, mf	1
308	123349	FITTING, union, swivel; 1 npt, mf, sst	1
309	24E024	HOSE, tank to system	1
309	24P094	HOSE, coupled, 72L, 1ID, 1NPT, SST (Assembly 24P091 only)	1
310	123346	NIPPLE, close; 1-1/4 npt, sst (with filter version only)	1
311	213062	FILTER, fluid (with filter version only)	1

Recirculation Probe Assembly



Ref.	Part	Description	Qty.
321	166466	FITTING, tee, pipe, female	1
322	124280	BUSHING; 3/4 npt x 1/4 npt	1
324	121478	FITTING, compression; 3/16 x 1/4 npt	1
325	124233	SENSOR, RTD, 4 pin; 1kohm, 4.25 in.	1
326	123082	FITTING, swivel; 3/4 nps x 3/4 npt	1
327	119992	FITTING, pipe, nipple; 3/4 x 3/4 npt	1
328	121686	CABLE, CAN; m8 x m8, 4P	1

Transfer Pump Valve, 24C157

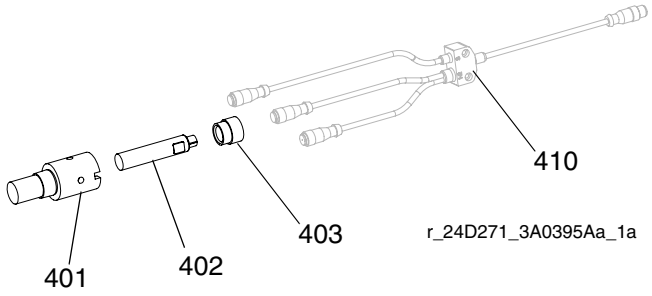


Ref.	Part	Description	Qty.
331	120900	VALVE, solenoid, 3 way	1
332	121021	MUFFLER; 1/4 npt	2
333	121018	ELBOW, male, swivel; 1/4 npt	2
334	100721	PLUG, pipe	1

Accessories and Kits

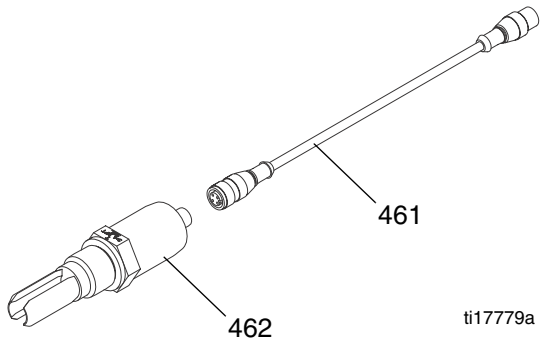
Level Switch Assembly, 24D271

Third level sensor proximity switch option.



Ref.	Part	Description	Qty.
401	16A511	HOUSING, well, proximity	1
402	121511	SENSOR, capacitive, 18 mm	1
403	16A512	NUT, well, proximity	1
410	123394	HARNESS, sensor, level, tank, (3)	Ref

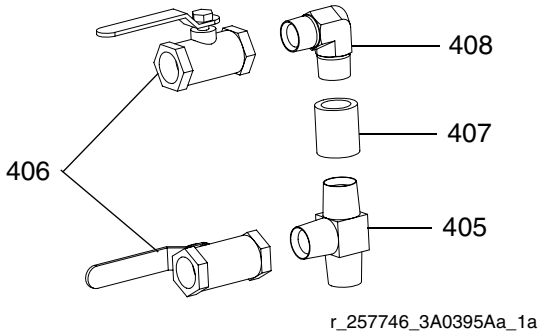
High Temperature Level Sensor, 24F519



Ref.	Part	Description	Qty.
461	125325	HARNESS, M12 x M12	1
462	16H657	SENSOR, level, vibrating	1

Vacuum Tree Kit, 257746

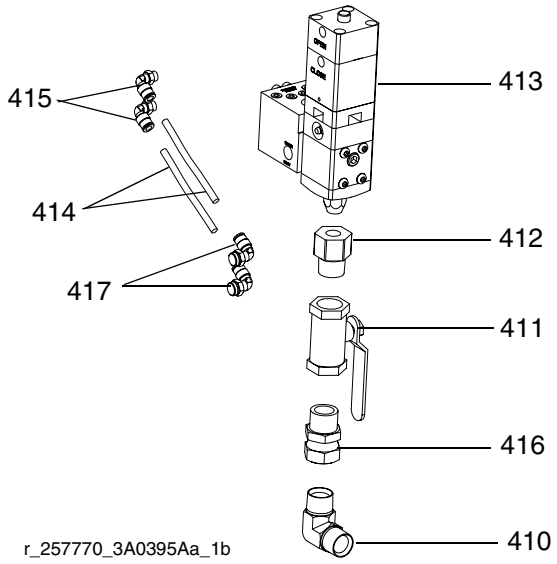
Connection kit to add vacuum to the tank.



Ref.	Part	Description	Qty.
405	122844	FITTING, tee; 3/4 npt(m), 3k, sst	1
406	122770	VALVE, ball; 3/4 npt(f), 2k, sst	2
407	122769	COUPLING, full; 3/4 npt, sst	1
408	121116	ELBOW; 3/4 npt(m)	1

Supplied Feed Refill Kit, 257770

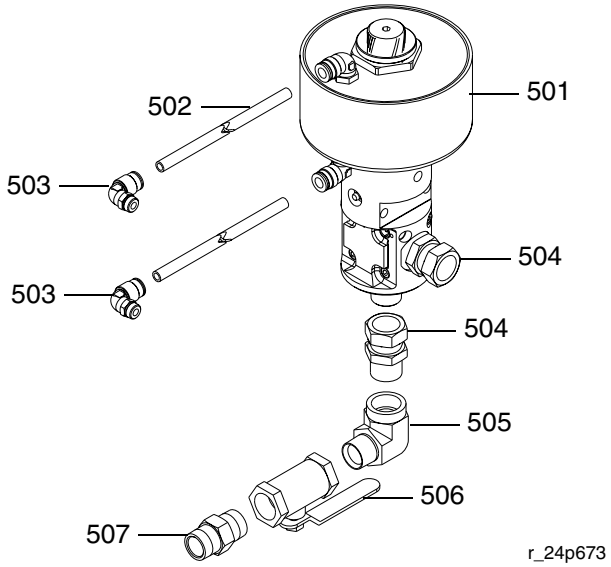
Refill kit for customer-supplied feed systems.



Ref.	Part	Description	Qty.
410	121116	ELBOW; 3/4 npt(m)	1
411	122770	VALVE, ball; 3/4 npt(f), 2k, sst	1
412	15T005	ADAPTER; 5/8-18 to 3/4 npt, sst	1
413	244910	VALVE, endure	1
414	054130	TUBE, PET; 0.25 OD, 12 ft.	-
415	112698	ELBOW, swivel, male	2
416	112268	SWIVEL, union	1
417	121022	ELBOW; 1/4 npt(m)	2

High Flow Supplied Feed Refill Kit, 24P673

Refill kit for customer-supplied feed systems.



Ref.	Part	Description	Qty.
501	V1M350	VALVE, ball, 3/4”	1
502	054106	TUBE, plyeth, .375 OD	-
503	121018	FITTING, elbow, male, swivel, 1/4 NPT	2
504	112268	SWIVEL, union	2
505	122763	FITTING, elbow, str, 3/4 NPT, 90, 3K, sst	1
506	122770	VALVE, ball, 2way, 3/4 NPT, female, 2k, sst	1
507	123111	FITTING, nipple, hex, 3/4 NPT, 3k, sst	1

Insulator Blanket Assembly, 257757

For use with heated 46 liter tanks.

Part	Description	Qty.
15U022	BLANKET, insulation	1
121208▲	LABEL, warning	1
	TAPE	2
	ADHESIVE	1

▲ *Replacement Danger and Warning labels, tags, and cards are available at no cost.*

Insulator Blanket Assembly, 257758

For use with heated 75 liter tanks.

Part	Description	Qty.
15U023	BLANKET, insulation	1
121208▲	LABEL, warning	1
	TAPE	2
	ADHESIVE	1

▲ *Replacement Danger and Warning labels, tags, and cards are available at no cost.*

Agitator with Heat Blanket Kits

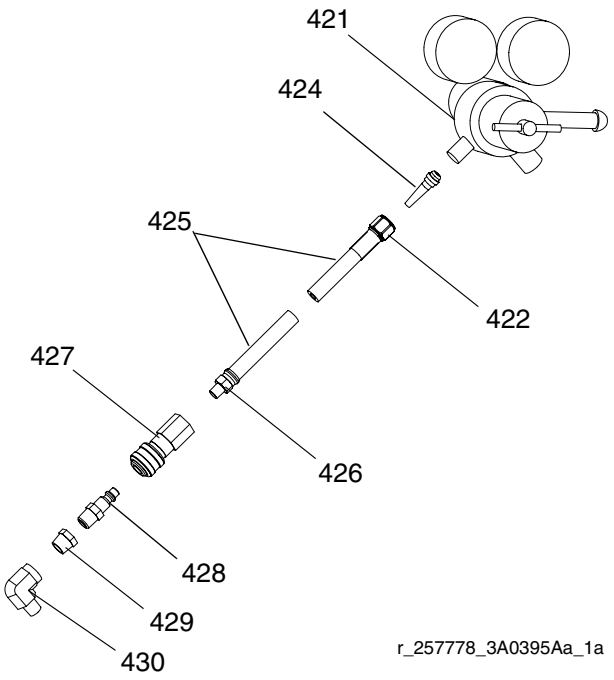
The following kits are only for 20 gal (75L) tank stands. For additional information and parts breakdown, refer to **Related Manuals** on page 3.

Part	Description	Qty.
24K346	Heat blanket with pneumatic agitator	1
24K347	Heat blanket with electric agitator	1

Insulator Blankets

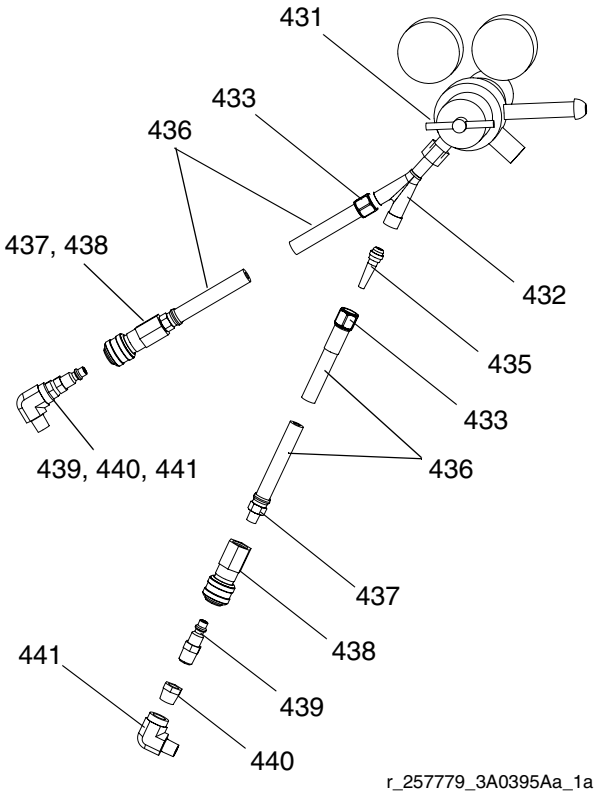
Part	Description	Qty.
125390	For use with 2 gal (7.5L) tanks	1
125388	For use with 20 gal (75L) tanks	1
125389	For use with 10 ga (38L) tanks	1
125391	2”x2” port cover	1

Single Nitrogen Harness 257778



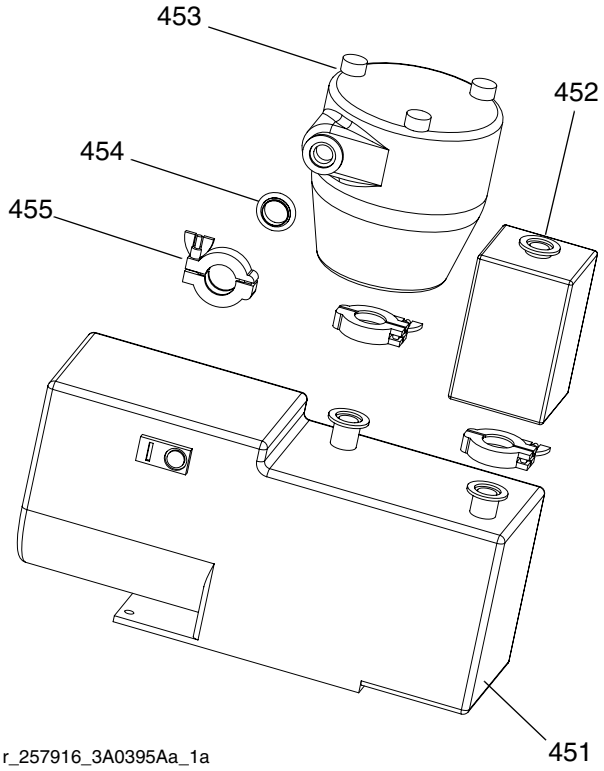
Ref.	Part	Description	Qty.
421	122647	REGULATOR, nitrogen; 1/4 npt, 1-15 psi	1
422	122649	NUT	1
423	122654	FERRULE	1
424	122773	GLAND, spiral, 1/4 in.	1
425	122758	HOSE, air; 0.25 ID, 0.53 OD, nylon, 10 ft.	-
426	122759	FITTING; 3/16 hose x 1/8 npt(m)	1
427	122762	COUPLER; 1/8 npt(f)	1
428	122766	COUPLER; 1/8 npt x 1/4	1
429	122768	BUSHING; 1/4 npt x 1/8 npt	1
430	123249	ELBOW, street, 90 deg.; 1/4 npt	1

Double Nitrogen Harness 257779



Ref.	Part	Description	Qty.
431	122647	REGULATOR, nitrogen; 1/4 npt, 1-15 psi	1
432	122771	CONNECTOR, Y	1
433	122649	NUT	2
434	122654	FERRULE	2
435	122773	GLAND, spiral, 1/4 in.	2
436	122758	HOSE, air; 0.25 ID, 0.53 OD, nylon, 20 ft.	-
437	122759	FITTING; 3/16 hose x 1/8 npt(m)	2
438	122762	COUPLER; 1/8 npt(f)	2
439	122766	COUPLER; 1/8 npt x 1/4	2
440	122768	BUSHING; 1/4 npt x 1/8 npt	2
441	123249	ELBOW, street, 90 deg.; 1/4 npt	2

Vacuum Pump Assembly, 257916



Ref.	Part	Description	Qty.
451	123029	PUMP, vacuum; 6.9 cfm, 1 ph	1
452	123030	FILTER, mist	1
453	123031	FILTER, trap	1
454	123032	RING	1
455	123033	CLAMP	3

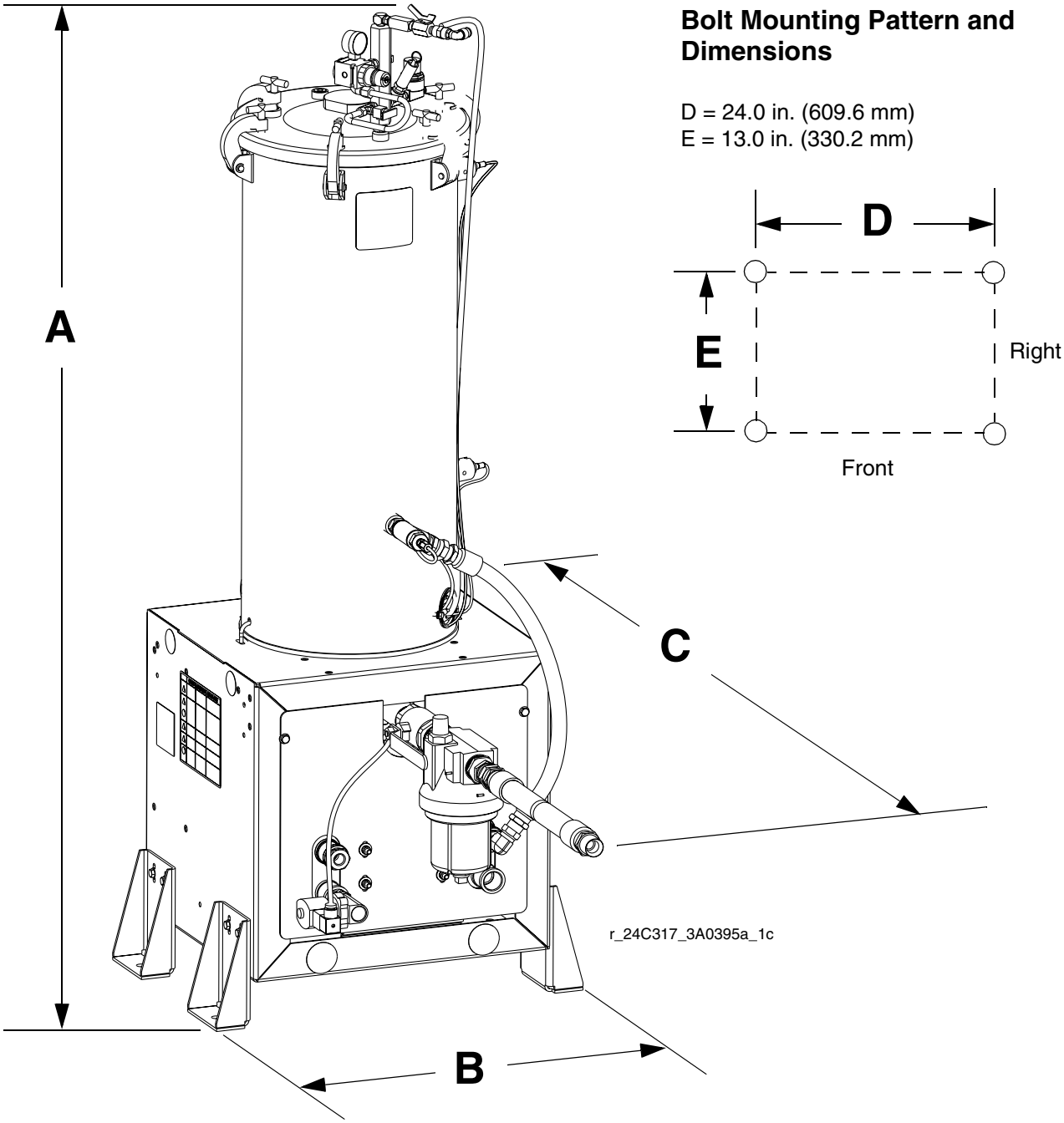
Desiccant Dryer Adapter, LC0097

Desiccant dryer (3/8 mpt) with adapter and cartridge.

Desiccant Dryer, LC0098

Desiccant dryer refill cartridge.

Dimensions



Bolt Mounting Pattern and Dimensions

D = 24.0 in. (609.6 mm)
E = 13.0 in. (330.2 mm)

A = 83.0 in. (2108 mm); 38L/75L tanks with agitation
A = 69.4 in. (1763 mm); 38L/75L tanks without agitation
A = 54.0 in. (1372 mm); 7.5L tanks without agitation
B = 26.0 in. (661 mm)
C = 34.6 in. (879 mm); depth without hose to system

Technical Data

Maximum material working pressure	100 psi (0.7 MPa, 7 bar)
Maximum feed supply pressure	100 psi (0.7 MPa, 7 bar)
Maximum air working pressure	100 psi (0.7 MPa, 7 bar)
Maximum fluid working temperature	
with level sensors	150°F (66°C)
without level sensors	190°F (88°C)
Line voltage requirements	230 Vac
Amperage	15 A
Blanket heater power	2400 W
Tank capacity	46 liter (12.1 gallon), 75 liter (19.8 gallon)
Maximum weight (empty tank)	340 lbs (154.4 kg)
Sound pressure	72.33 dB(A)

Graco Standard Warranty

Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

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This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

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For patent information, see www.graco.com/patents.

Original Instructions. This manual contains English. MM 3A0395

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